OCTOBER 19, 1953

Military Rolling Stock . . . p. 63

RAILWAY AGE

The Standard Railroad WEEKLY for Almost a Century

This month Dr. Oscar Horger demonstrates that absence of lateral movement is one reason why:

The taper makes TIMKEN® the only journal bearing that delivers what you expect when you buy a roller bearing

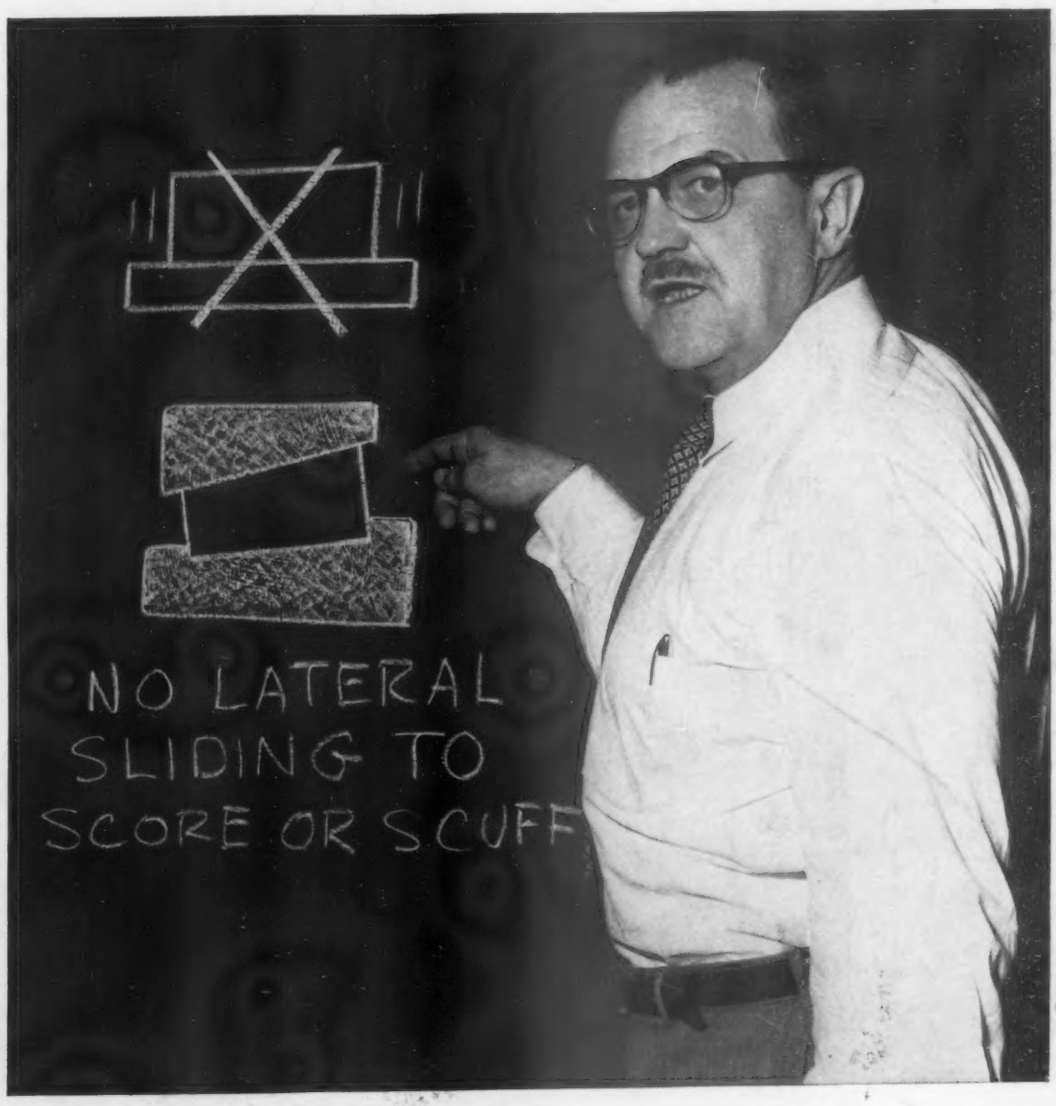
RAILROADS are switching to roller bearings to: 1) end the hot box problem, 2) cut operating and maintenance costs to a minimum; other advantages are secondary. And the Timken® tapered roller bearing is the one bearing you can count on to do this.

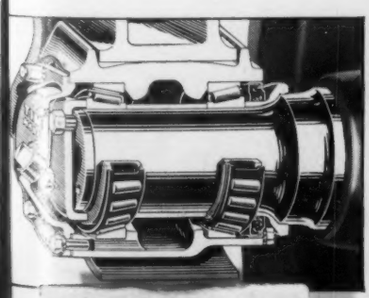
1) *No lateral movement within the bearing.* In straight roller designs, incessant lateral movement scuffs rollers and races, shortening bearing life. Lubricant is pumped through the seal and out of the journal, dirt and water are drawn in. The auxiliary devices, needed to take thrust loads, are hard to lubricate with grease and need more maintenance.

The taper in Timken bearings prevents lateral movement, takes thrust loads. Because Timken bearings always roll, never slide, there's no scoring, scuffing or pumping. Result: the hot box problem is eliminated. Less maintenance and lubricant are needed. Bearing life is increased.

2) *Positive roller alignment.* The taper holds roller ends snug against the rib, where wide area contact keeps rollers aligned. There's no skewing of rollers to upset full line contact, shorten bearing life.

Get what you pay for when you switch to roller bearings to end the hot box problem and cut operating and maintenance costs to a minimum. Get Timken tapered roller bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".





PRINT IN BINDING

THE TAPER MAKES TIMKEN THE BEARING YOU TRUST

NOT JUST A BALL ○ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ↓ AND THRUST →○← LOADS OR ANY COMBINATION

STABILIZATION · DISPERSION

FOR SUCCESSFUL USE OF LOWER COST DIESEL FUEL OILS

with *Nalco* SR-158D

- CUTS FUEL COSTS
- IMPROVES FUEL EFFICIENCY
- LOWERS MAINTENANCE
  - of LOCOMOTIVES
  - of STORAGE and FUELING FACILITIES

Nalco's series of Fuel Oil Treatments are enabling railroads to successfully use fuel oils that, untreated, would cause serious difficulties in both storage systems and locomotives.

Fuel oil cost savings achieved with Nalco Treatments are only part of the picture: better fuel combustion; sludge-free tanks, valves, pipes and injectors add further savings in maintenance and increase over-all operating efficiency.

Full details on Nalco Fuel Oil Treatments will be sent promptly upon request. Call your Nalco Representative, or write direct.

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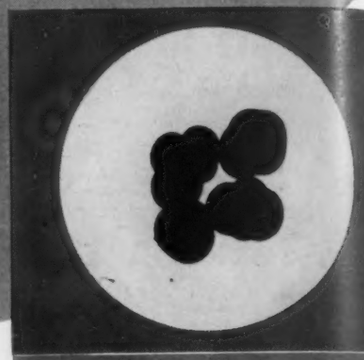
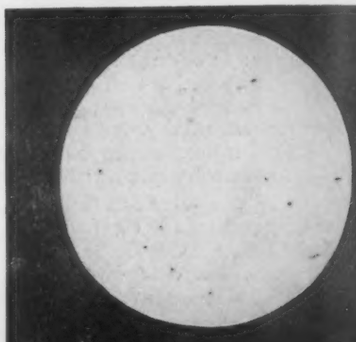
In Canada: Alchem Limited, Burlington, Ontario



UNTREATED lower-cost fuel oil sample, magnified 8400X, shows objectionable sludge particles that cause poor combustion, clogged filters and sticking injectors.



TREATED, same lower-cost fuel oil, same magnification as above, shows how Nalco SR-158D disperses sludge, reduces particle size.

THE *Nalco*® SYSTEM . Serving Railroads through Practical Applied Science

This is Bethlehem's Model 53

It's an easy-working stand with the leverage needed for heavy throws

Not long ago, we were watching some yard men throw heavy switches with Bethlehem 53 Switch Stands.

"Nothing to it," one of them grinned. "Easy. Just squirt a little oil into 'em once in a while."

That's about all there is to keeping the 53 in working order. Give it a little oil once in a while. Then it easily develops its full power, so that throwing a heavy switch is no trick at all.

One reason is the Model 53's extreme simplicity. The mechanism has only three moving parts. This is a stand with Bethlehem's sliding-block-and-crank device, in which a machined steel block travels through an arc of 180 deg and passes the force of its movement along to the spindle. Rotating smoothly, the spindle shifts the crank, and the switch points respond.

The 53 is a husky, durable stand used for both main-line and heavy yard duty. Over the years thousands have been put into service, and some are real veterans by now, but still going strong. Full details and a demonstration upon request.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

★ BETHLEHEM STEEL ★

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

The front end always knows what the rear end is doing

on freight trains equipped with this new "UNION" I.T.C. System

Communication between the engineman and conductor is as easy as telephoning—and just as sure—with new "UNION" Single-Channel Two-Way Inductive Train Communication. Whether you are in the cab or caboose, you just pick up your handset, press a button, and talk. Your message comes loud and clear through the speaker at the opposite end of the train. This quick communication increases safety . . . and saves time.

"UNION" I.T.C. assures privacy

With this "UNION" I.T.C. System you can talk to nearby trains and wayside stations as well as members of your own crew. But only qualified railroad personnel along the right of way can listen in. Outsiders do not receive your messages. And—your transmission will not interfere with radios, television, telephone, or telegraph services near the railroad.

Compact, lightweight equipment

This new "UNION" I.T.C. System—designed *especially* for diesel-electric or electric locomotive installations—consists of a transmitter and a receiver which are mounted on trays in separate lightweight equipment boxes. The trays float on shear-type rubber mountings that absorb shock and vibration. The small size of the units permits you to mount them where you can get at them easily for maintenance or testing.

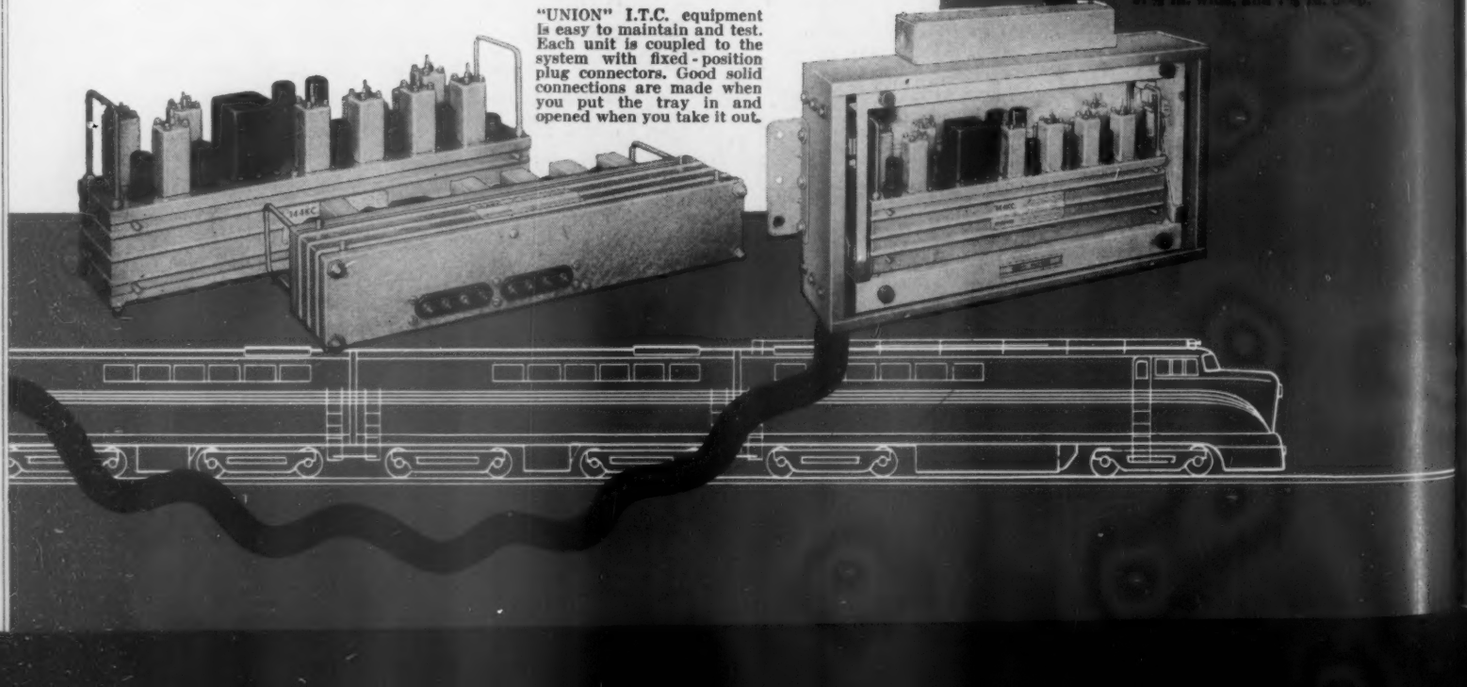
Get in touch with our nearest District Office for complete information.

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO



Transmitter (above) and receiver (below) are mounted in equipment boxes that take up very little room. Each box measures only 18½ in. high, 21½ in. wide, and 7½ in. deep.

"UNION" I.T.C. equipment is easy to maintain and test. Each unit is coupled to the system with fixed-position plug connectors. Good solid connections are made when you put the tray in and opened when you take it out.

RAILWAY AGE

PUBLISHED WEEKLY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION AT ORANGE, CONN., AND ENTERED AS SECOND CLASS MATTER AT ORANGE, CONN. UNDER THE ACT OF MARCH 3, 1879. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA. EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y., AND 79 WEST MONROE STREET, CHICAGO 3, Ill. BRANCH OFFICES: 1081 NATIONAL PRESS BUILDING, WASHINGTON 4, D. C.—TERMINAL TOWER, CLEVELAND 13, OHIO—TERMINAL SALES BUILDING, PORTLAND 5, ORE.—1127 WILSHIRE BOULEVARD, LOS ANGELES 17, CAL.—244 CALIFORNIA STREET, SAN FRANCISCO 11, CAL. — 2909 MAPLE AVENUE, DALLAS 4, TEX.

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October 19, 1953 **Vol. 135, No. 16**

Week at a Glance

"Understanding of its position as the biggest shipper and best customer of commercial carriers"—but not as a "protector" of those carriers—was asked by the Department of Defense at last week's annual convention of the National Defense Transportation Association. **11**

Railroad employee magazines are "big business," their editors were told by G. M. Crowson, of the IC, at their annual meeting. Published now by some 55 railroads, they have a combined circulation of nearly two million, and readership of about six million, and represent, "conservatively," an annual expenditure of $3.5 million. Moreover, Mr. Crowson said, they have become "infinitely better publications," and "have had more to do with the evolution in our public relations than most railroaders know." **13**

"Piggy-back" transportation of truck trailers on railway flat cars is one of the bright spots in the railroads' long-term outlook, says the Katy's Donald V. Fraser. But, he warns, all segments of labor must cooperate—as, indeed, some of the brotherhoods have indicated a willingness to do. **15**

Revenues and expenses of railways for August and eight months of 1953 and 1952. **28, 30, 32, 36**

RAILWAY AGE FORUM:

Does competition need regulating? Old-style "monopolistic competition" may have, but the kind of competition which exists in transportation today is totally different. **61**

A "sag" in the enterprise facade is showing up in the enthusiasm, currently being displayed by some of the Midwest's leading spokesmen for private enterprise, for deepening of Chicago's so-called Sag channel. **62**

Current Statistics

Operating revenues, eight months	
1953	$ 7,177,891,292
1952	6,810,999,610
Operating expenses, eight months	
1953	$ 5,413,718,323
1952	5,298,347,702
Taxes, eight months	
1953	$ 862,075,835
1952	780,695,887
Net railway operating income, eight month	
1953	$ 744,916,284
1952	613,069,838
Net income, estimated eight months	
1953	$ 572,000,000
1952	435,000,000
Average price railroad stocks	
October 13, 1953	57.85
October 14, 1952	62.96
Carloadings revenue freight	
Forty weeks, 1953	29,880,593
Forty weeks, 1952	28,869,816
Average daily freight car surplus	
October 10, 1953	6,767
October 11, 1952	2,067
Average daily freight car shortage	
October 10, 1953	4,994
October 11, 1952	15,193
Freight cars delivered	
September, 1953	5,706
September, 1952	3,762
Freight cars on order	
October 1, 1953	42,198
October 1, 1952	95,377
Freight cars held for repairs	
September 1, 1953	97,013
September 1, 1952	108,222

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX AND BY THE ENGINEERING INDEX SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

Departments

Benchmarks & Yardsticks	59
Competitive Transport	16
Current Publications	44
Equipment & Supplies	18
Figures of the Week	16
Financial	103
Forum	61
Labor & Wages	15
Law & Regulation	16
New Facilities	18
Operations	15
People in the News	17
Public Relations	13
Railway Officers	103
Revenues & Expenses	28
Securities	102
Supply Trade	18
Traffic	11
What's New in Products	52

Week at a Glance CONTINUED

Modern military rolling stock, designed for efficient operation under widely varying conditions, has been developed by the Transportation Corps, in cooperation with railroads and equipment builders. 63

The new D&RGW yard at Grand Junction, Colo., uses push-button retarders and automatic switching to speed up classification of cars. 68

Triple-goal employee training is being carried out on a large scale by the Pennsylvania, to increase job knowledge, improve employee relations, and win more customers for the railroad. 73

A technical center for product development, and for the testing of railroad cars and car equipment, has been opened by the National Malleable & Steel Castings Co. at Cleveland. 76

Electronics at work on the EJ&E include not only conventional classification yard controls, but a new system of automatic retarder control based on car weight and speed measurements. 78

How the D&RGW uses low cost fuel, after extensive research, to increase monthly fuel bill savings. 83

Car supply caused concern when the National Association of Shippers Advisory Boards held its annual meeting at Omaha, October 6-8. 86

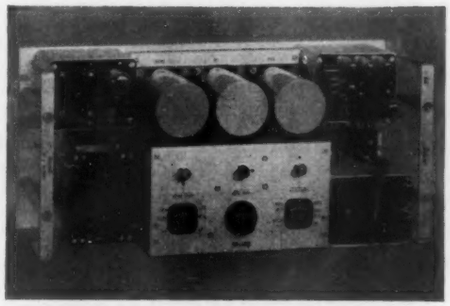
BRIEFS

A $75-million air rights project has been announced by the Chicago Union Station Company. It involves three block-sized parcels of land which will be leased, rather than sold, for construction of large, modern buildings over present train sheds.

The cost-of-living wage increase of three cents an hour for railroad employees which went into effect October

when should you consider

low-cost a-m telegraph carrier?



Lenkurt Type 24C Telegraph Carrier

SPECIFICATIONS

- Channel allocation in voice band meets AAR standards.
- Accessible loop option switch on each panel permits rapid selection of four types of leg operation.
- When mounted on front and back of rack, complete equipment for 18 channels fits on one 10′ 6″ rack.

Whenever circuits are maintained to high standards, you will want to consider Lenkurt Type 24C Telegraph Carrier Systems for increasing telegraph channels. You can use this economical carrier to multiply channels between communication centers or to provide a few channels to points along the line. At the same time, you'll make substantial savings in equipment costs.

You may start your original installation with as few as one or two channels. Each panel is complete. New channels can always be added and existing ones removed or rearranged quickly. Ultimate capacity for each voice channel is 18 full- or half-duplex telegraph channels.

Would you like to know whether your circuits permit use of this inexpensive way to add more A-M (on-off) telegraph channels? Call on Automatic Electric's helpful Follow-Thru Engineering Service for all the facts you'll need.

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Week at a Glance CONTINUED

1 will cost eastern railroads about $9,600,000 for the balance of 1953, according to the Eastern Railroad Presidents Conference.

A recent French visitor to *Railway Age* told our editors that in France there are 1,500 specially equipped trailers and 600 specially equipped flat cars in trailers-on-flats service. In France, in 1952, trailers on flats produced about 250 million net ton-kilometers (approximately 156 million ton-miles). Ninety-eight per cent of the traffic was in commodities which the French National Railways were not able to touch until TOF was instituted.

Trying for more business, railroads in the East and West are giving the Defense Department Section 22 quotations on passenger movements. Rate cuts will be deeper than the 10 per cent provided in the standard Military Agreement. Southeastern roads are not in; they voted last week not to participate in such quotations.

Air freight shipments will set an all-time high in 1953, according to spokesmen for the industry. They expect to roll up from 275 to 300 million ton-miles by year-end. For the first half, air freight tonnage was up 18 per cent over last year.

Tip-off for railroad police was furnished by one of a gang of young thieves apprehended after breaking into and robbing their 12th car of l.c.l. freight. "You guys just give the stuff away," he told them. "You've got the cars all labeled for us in big letters, 'for merchandise loading only.'"

Russia's reported possession of the H-bomb "puts new emphasis on dispersal of vital U. S. industries, particularly in the Northeast," says David I. Mackie, chairman of the Eastern Railroad Presidents Conference. Eastern railroads, he adds, "are ready for any industrial movement found to be in the public interest" because of their "know-how" about industry movements, transportation needs, labor supply, tax structures, real estate opportunities and supplies of such essential items as fuel, water and raw materials.

Goodwill toward truckers is currently being nourished among motorists along western routes of Pacific Intermountain Express by nine new "courtesy" cars recently placed in service. While primarily intended as service cars for its own truck fleet, the cars carry first aid kits, fire extinguishers, tow cables, fusees, lights, tools and other equipment to assist motorists in distress and to aid highway patrol officers in emergencies. P.I.E. put its first courtesy car in service in 1951. Now they cover the company's entire 2,000-mile route from the Pacific coast to various midwest terminals.

Passenger business booms—at National Airport in Washington, D.C. A total of 2,637,296 passengers passed through the airport in fiscal 1953, compared with 1,151,453 in 1948. The number of commercial aircraft using the field increased from 106,942 to 158,072 during the same 5-year period.

This suggestion comes from Z. G. Hopkins, special representative, public relations, of the Association of Western Railways: That railroad company magazines make a studied effort to combat the "Rail Profits Soar"-type of articles carried by the railway labor press, with clear, accurate and easily-grasped presentations of actual facts. He warns that the job will be a continuing one, and that quite a number of articles will have to appear in print before any conclusive results can be expected.

Smart travelers are riding trains to destination . . . then using

Hertz Rent-A-Car service on arrival

Use of the Hertz-originated Rail-Auto Plan is soaring everywhere! Final compilations for 1952 by Hertz Rent-A-Car System indicate that men and women who rented cars at their rail destinations last year *actually* traveled 136 million miles on trains! They averaged 800 miles rail travel per person, round trip!

Railroads who have joined with Hertz in steadily, enthusiastically promoting car rentals at destination as a wanted, needed travel service, know that it pays . . . *and* big! Hertz, too, knows it pays, for Hertz business has grown more than 5 times since 1947, when the first great Hertz campaign was launched, and a main factor is the phenomenal public demonstration for Rail-Auto service. Greater gains can be expected during the next year. Everywhere increasing numbers of vacationers and business travelers particularly, already are piling up new records in destination reservations.

. . . off the highways and back on the trains!

How much of this new surge of Rail-Auto traffic comprises travelers who have . . . not for economy as many believed, or any reason other than desire or need for a car at destination . . . been driving long, tiring, often hazardous miles between cities in their own cars?

Questioning of car renters from 700 Hertz stations in more than 500 cities throughout the United States, Canada, Alaska, Hawaii, Cuba, Great Britain, Mexico, Haiti, the Virgin Islands and Switzerland show beyond a doubt that the number of such travelers is huge. They are *new* train travelers. They are reclaimed train travelers. They are delighted with the comfort and convenience of modern train travel. They are glad to be able to step from the train to a smart new car from Hertz, to drive as their own, as long as they wish, at surprisingly low rates. All gasoline and oil, Public Liability, Property Damage, Fire and Theft Insurance and $100.00 deductible collision protection are included in the low rate—at no extra cost. There's no finer rent-a-car service anywhere.

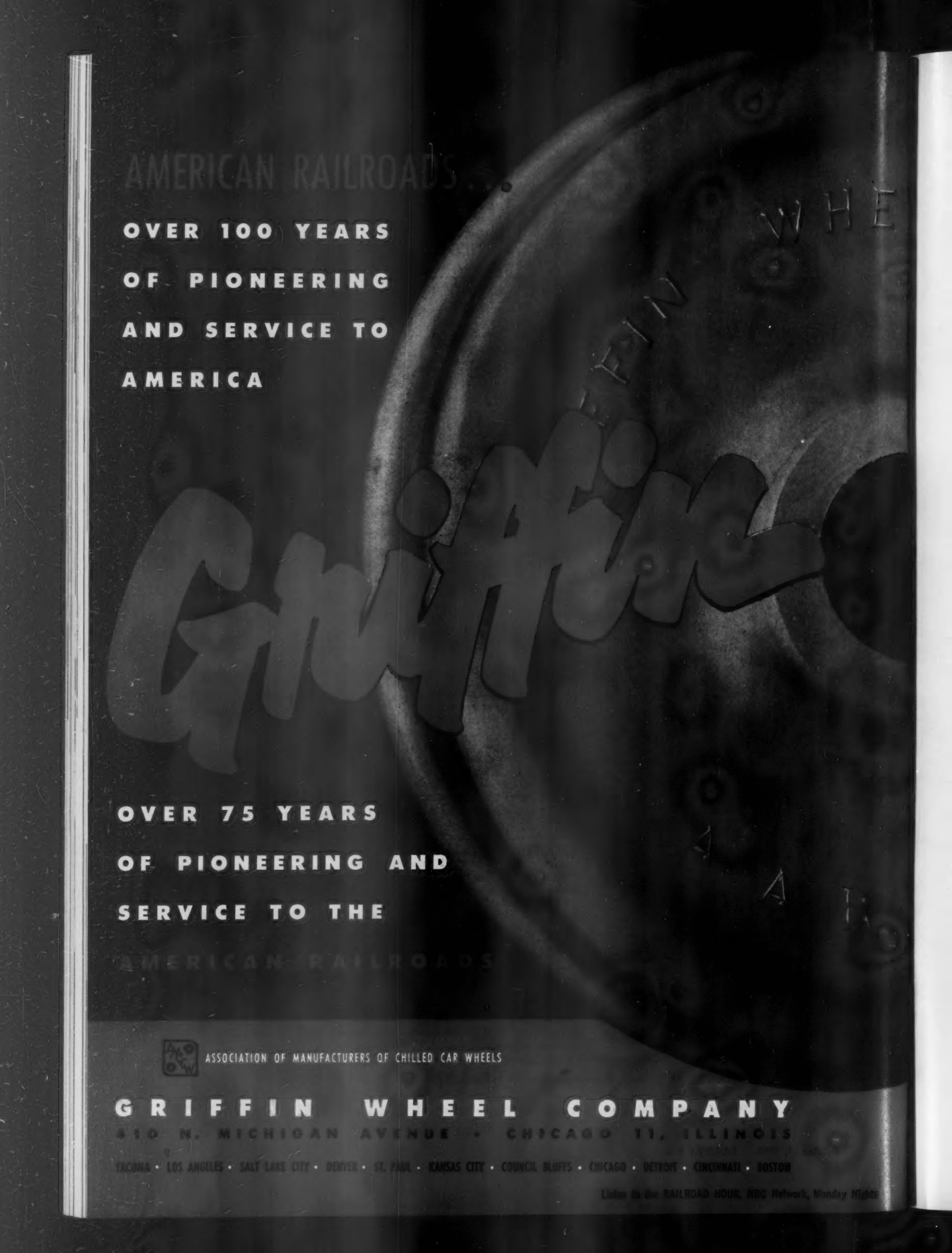
Every railroad man is aware that city-to-city private auto travel totals not just hundreds of millions, but *hundreds* of *billions* of miles yearly, and deprives the railroads of more possible revenues than any other competitor. Many leading railroads are doing something about it . . . is yours? All railroads *must* if the job is to be 100% effective in tapping this great reservoir of potential profits. The job must be carried forward aggressively, consistently.

NEW HERTZ LOCATION AT THE UNION STATION IN CINCINNATI

On June 1 Hertz installed a Rent-A-Car counter in the Union Station to provide faster and more convenient service for passengers arriving in Cincinnati. Since the main Hertz Station at 1130 Sycamore Street is not far from the depot, customers requesting cars at the depot counter will have their cars delivered to the depot by Hertz in about five minutes. On request, Hertz will provide this fast delivery 24 hours a day, 7 days a week. This is the kind of service that takes people from highway travel and switches them to the Rail-Auto Plan. From time to time Hertz will announce the opening of similar car rental counters in other railroad stations.

Our 29th Year Of Finest Rent-A-Car Service

Dept. D10, 218 S. Wabash Avenue, Chicago 4, Illinois; phone: WEbster 9-5165 **HERTZ** *Rent-A-Car* **SYSTEM**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OF PIONEERING
AND SERVICE TO
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Defense Dept. Seeks "Understanding"

Air Force spokesman at N.D.T.A. convention sees department as a big shipper, but not a "protector" of the economic life of carriers

The Department of Defense "expects from the transportation industry a greater understanding of its position as the biggest shipper and best customer of commercial carriers," Brigadier General John P. Doyle, director of transportation for the Air Force, declared last week in a speech at the National Defense Transportation Association convention in Louisville, Ky.

"It is difficult to understand," the general said, "why the department should be considered the protector of the economic life of carriers rather than a shipper with traffic management responsibilities similar to those of commercial industry. Obviously, it cannot be both."

General Doyle was among the participants in a panel discussion in which E. G. Plowman, vice-president—traffic, United States Steel Corporation, served as moderator. The panel group covered this question: What does industry expect of government and of the services; and what do government and the armed services expect of industry?

No Room for Economy—The Air Force general said government agencies are prohibited from exercising economies and effectively managing their traffic if they must be responsible for the protection of each mode of transportation.

"Continued evidence is submitted to us to indicate that some carriers view the Department of Defense as the agency which should accept that protective responsibility," he said.

As an example, General Doyle said rail carriers have complained to the Department of Defense that the manner in which the military departments are managing their passenger traffic is detrimental to rail carriers and diverts business to other modes of transportation. He cited other complaints from motor and air carriers and freight forwarders.

"There is no argument," the general continued, "that the Department of Defense must be assured of sufficient transportation capability to meet emergency requirements. Unfortunately no one, except the Almighty, knows what our requirements will be if we have another war."

Commenting on the distribution of defense traffic among carriers, General Doyle said the Air Force considers "service" as a factor in determining the routing of traffic. When this is included, he added, it is difficult to find two carriers identical in all respects. The Air Force has therefore adopted the practice of routing its traffic to the best interest of the Defense Department, equalizing tonnage as well as possible among carriers who offer the "service" required.

"Service" Gets Business—For individual modes of transportation to increase their share of Air Force traffic, they must provide service at reasonable costs, "rather than depend upon an erroneous interpretation of policy to divert traffic to their modes," he said.

"We should be looked upon by the carrier industry in the light of a shipper who spends one billion dollars per year for commercial transportation and for that expenditure expects the best service at fair rates. The time has not arrived," General Doyle added, "when it is necessary to use carriers' services merely to keep them in business."

The panel discussion in which General Doyle participated was held on the morning of October 13—last day of the three-day N.D.T.A. convention. Others on the panel included John E. Tilford, president of the Louisville & Nashville; Kenneth Vore, director of transportation, Office of the Secretary of Defense, and Edward J. Buhner, a former president of American Trucking Associations.

Roads Want No Handout—Mr. Tilford advised convention delegates that railroads want to keep their facilities in an efficient operating condition for military use without subsidy from the public treasury.

The big problem that presently engages the attention of railroad management, Mr. Tilford said, is the capital expenditure involved in keeping rail-

E. G. PLOWMAN, vice-president—traffic of the United States Steel Corporation, is the new president of the N.D.T.A.

ARTHUR H. GASS, chairman of the Car Service Division of the Association of American Railroads, is the retiring president.

N.D.T.A. ELECTIONS, AWARDS

E. G. Plowman, vice-president—traffic, United States Steel Corporation, was elected president of the National Defense Transportation Association for the coming year. He succeeds Arthur H. Gass, chairman of the Car Service Division, Association of American Railroads.

John E. Tilford, president, Louisville & Nashville, was elected as one of eight national vice-presidents of N.D.T.A.

D. J. Russell, president, Southern Pacific, was accorded "honorable mention" as runner-up for the association's annual Transportation Award. The SP president was cited for his leadership in restoring rail lines destroyed by the Tehachapi earthquake in July 1952. W. F. Gibbs, designer of the super-liner "United States," won the top honor.

T. Louis Chess, general passenger agent of the SP, and Mr. Gass, the retiring president, were awarded certificates "in recognition of their work in furthering the aims and objectives of N.D.T.A."

road operation in step with scientific and technological advances.

Railroads must be permitted to realize a sufficient return on net investment if they are to keep in readiness, he declared. He said money spent for expansion and improvements must be paid for currently from earnings—and despite this handicap, the railroads have spent more than $7.5 billion in the past seven years to increase their capacity.

The L&N president called for continued private ownership in transportation. He predicted that if nationalization ever comes about, it will be the result of a breakdown in services or facilities caused by lack of funds and capital.

Trucks Seek "Fair Deal"—Mr. Buhner, representing the motor carriers, said the trucking industry wants nothing more than "a fair deal" from government agencies. He said they want that share of business to which they "rightfully are entitled by reason of the special advantages inherent in truck transportation."

The former A.T.A. president called for an end to Section 22 rate-making, and asked that the General Accounting Office "reform the present arbitrary procedures with regard to audits of freight vouchers."

Mr. Vore answered the question of what the Defense Department expects from industry by listing several "qualities." Among these were leadership (in the form of new ideas), understanding (the department has its problems, too), and sound public relations (facts, not propaganda).

Speakers at other sessions during the convention included Robert B. Murray, Jr., Under Secretary of Commerce for Transportation, and Arthur H. Gass, chairman of the Car Service Division, Association of American Railroads. Mr. Gass was the outgoing president of N.D.T.A.

New Agency Is Studied—Mr. Murray spoke at a luncheon sponsored by railroads serving Louisville. He revealed that the government's Committee on Defense Transportation and Storage, of which he is chairman, is conducting a "special study" to determine the

CONVEYING STATISTICAL INFORMATION PAINLESSLY

IN WESTINGHOUSE Air Brake Company's new railroad film, "At This Moment," figures on railway performance and progress are given by "Scotty" (Cliff Hall), a comic character (left), and by "Kelly" (Patricia Englund), the feminine lead (right), without breaking the thread of the story.

THESE A.A.R. DIRECTORS saw the film's first showing: Back row, left to right—C. M. Hutchins, Bangor & Aroostook; H. E. Simpson, B&O; P. W. Johnston, Erie; W. S. Franklin, PRR; J. P. Kiley, CMStP&P; D. J. Russell, SP; H. C. Murphy, CB&Q; P. J. Neff, MP; F. G. Gurley, Santa Fe. Front row, l. to r.—William White, NYC; R. H. Smith, N&W; J. W. Smith, SAL; J. E. Tilford, L&N; W. T. Faricy, A.A.R.; G. A. MacNamara, Soo Line; A. E. Stoddard, UP; and Clark Hungerford, Frisco. Four of the directors were not present for the picture.

"best form" of wartime transport organization.

The under secretary said a transportation control organization must be "in being," capable of immediate expansion, if war strikes. Presumably, this overall control agency would "coordinate" land, sea and air transportation services and facilities, and thus would have broader responsibility than the existing Defense Transport Administration.

"An Inescapable Element"—Remarks by Mr. Gass were made at the convention's opening business session on October 12. He keynoted the meeting with the statement that "in every aspect of defense—military and civil—transportation is an inescapable element."

We must maintain our defense-supporting transportation system on the basis of privately-owned, business-operated, free enterprises, Mr. Gass said. He called on defense agencies in normal times to use "to the fullest extent practicable" the transportation business facilities upon which they will rely in time of emergency.

Mr. Gass stated that "any presumptive saving which is secured at the price of atrophying, or weakening by disuse, the fundamental transportation agencies of the country is secured at entirely too high a price."

N&W Sales and Service Men Meet in Norfolk

More than 125 Norfolk & Western sales and service men from all parts of the nation attended a Norfolk, Va., meeting on October 8 and 9 to discuss mutual problems of freight solicitation and improvement of service to shippers, and to acquaint themselves with the railroad's facilities in and around the port of Norfolk. Arrangements for the two-day program were handled by a committee headed by W. C. Sawyer, N&W foreign freight traffic manager of Norfolk and New York. The meeting will be described in greater detail in next week's *Railway Age*.

Southern Adopts Punch-Card Ticket

A new kind of railroad ticket went on sale October 1 at all ticket offices of the Southern. Said to be the first punched-card railroad ticket ever used in this country, the new card ticket, slightly larger than a dollar bill, folds along pre-scored lines to a size easily carried in wallet or pocketbook. Under the new system, the origin, destination, route, fare and tax is printed in advance on almost two-thirds of all tickets sold. All the agent has to do is date the ticket and record fare, tax and total on his cash register.

Local tickets covering travel on Southern lines alone have been sold in the new form since October 1. Interline tickets, for trips started on the Southern that extend to one or more other railroads, will be changed to the new type next December 1.

FARICY ON "SELECTIVE RATE CUTTING"

In his address to the National Association of Shippers Advisory Boards (see page 86) President W. T. Faricy dealt with the practice of "selective rate cutting" as follows:

"Every other form of transportation selects and seeks only traffic which is attractive to it. But when railroads seek such adjustment of rates as will regain or retain these particular types of traffic, they are frequently met with the objection that railroads should not be permitted to engage in what is called 'selective rate cutting.'

"According to this theory, it would seem that the privilege of competing is to be restricted to our competitors —they who may be selective in both services and rates—while like opportunities to compete are denied to the railroads."

Public Relations

"Where Magazines Come In"

Employee publications, as "bone and sinew" of communications, can "tell the industry story" where it will do most good

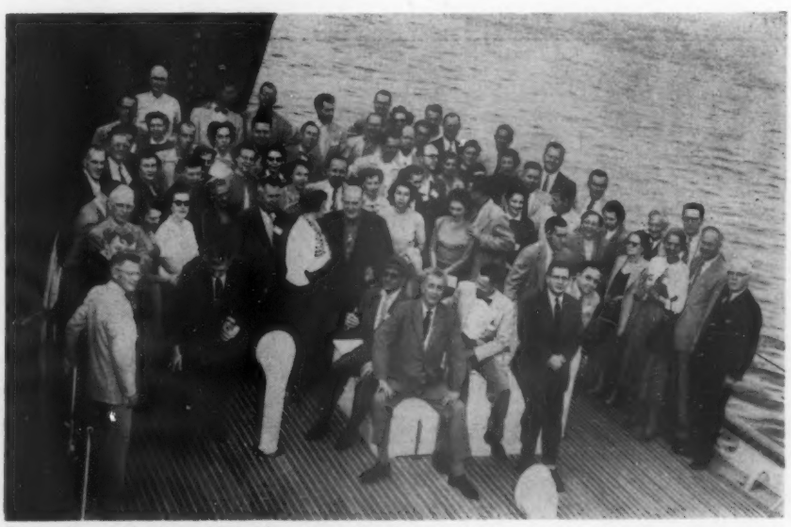
"Because of the important role you play . . . you are at the very center of the public relations of your companies. . . . Tell the industry story to railroad employees—simply, sincerely, interestingly."

Those two statements, one by George M. Crowson, assistant to president of the Illinois Central, and one by Harold M. Sims, director of public relations of the Association of Western Railways, highlighted the 31st annual convention of the American Railway Magazine Editors' Association, which was held at New Orleans, October 7-9.

Although he expressed the opinion that public sentiment is generally favorable to the railroads, Mr. Sims declared that "there have been many failures in the conversion of this favorable public sentiment into favorable legislative action. . . . The most influential group from which help may be expected in receiving such favorable action is railroad employees. That is where railroad magazines come in."

"Bone and Sinew"—Keynoting the convention's general theme, "New and Better Methods of Communication," Mr. Crowson described "communication" as "the soul and center of public relations," and employee magazines as "the bone and sinew of communication on most railroads."

"Public relations," he explained, "is a great centrifugal force, starting from



George Haverstick, Jr., publicity department, Board of Commissioners of the Port of New Orleans.

INSPECTION of New Orleans port facilities on the Port Commission's yacht, "The Good Neighbor," was a feature attraction of the A.R.M.E.A.'s three-day convention in that city. A visit to New Orleans' nearly completed new union passenger terminal occupied another afternoon.

the center and moving outward. Certainly that is the way public relations works on railroads, starting with the people who make up the internal organization and moving outward to reach shippers and passengers, investors and suppliers, public officials and community leaders and all the other components of what we call 'the public.'

"Because of the important role you play and the great influence you bring to bear upon our internal organizations —upon what railroad people know and think about and do—upon how they live with one another and the attitudes they display in their relations with others—you are at the very center of the public relations of your companies and of the industry of which they and you are a part."

Mr. Sims, too, described public relations as "a collaborative job" in which the public relations man—and the magazine editor—"must collaborate with other officers of his own railroad and with numerous people outside the railroad."

Workshop Sessions—The "workshop sessions" which are a regular feature of A.R.M.E.A. conventions were highlighted by panel discussions of magazine layout, of editing problems, and of what employees "read and like to read" in their company magazines.

The session on layout was conducted by George P. McCallum, editor-in-chief of the Maine Central Magazine. Other participants were Harold T. Freed, managing editor of the Norfolk & Western Magazine; Charles L. Knapp, editor of the Katy Employees' Magazine; Thomas G. Lynch, editor of the Piedmont & Northern-Durham & Southern Semaphore; and Alfred C. Strasser, art director of the Pennsy. The subject of layout was followed up in an address on "Modern Trends in Magazine Layout," by Merle Armitage, art director of Look.

AURORA, ILL., WOULD BAN FREIGHT TRUCKS

Seeking a means of banning highway trucks from his city's streets, the mayor of Aurora, Ill. (population 50,000), has taken the problem of where they should go instead to the governor of the state.

Said the mayor: "The people of Aurora have been harassed enough by diesel fumes, leap-frogging trucks in the business district, and the threat of serious accidents due to trucks following each other so closely." He said he held a conference with representatives of some of the larger interstate carriers that operate on the city's streets and while they agreed that some sort of a by-pass around the city was a nice idea, they did nothing about it.

The governor has promised help in part of the 1954 state roads program; it is likely that a bridge will have to be constructed across the Fox river north of the city before an alternate route can be provided. Meanwhile, the mayor has told his police force to order all trucks carrying explosives to by-pass Aurora completely.

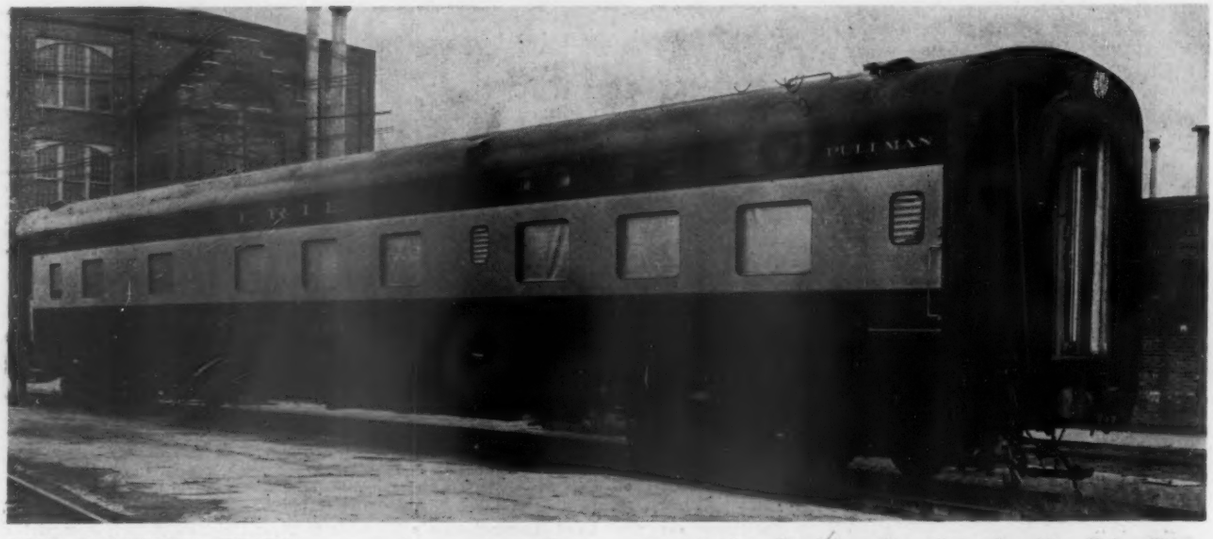
The general discussion session on editing problems was led by William E. Deaton, editor of the Elgin, Joliet & Eastern's "J" Milepost; while William B. Grumley, editor of the Nickel Plate Magazine, moderated the employee panel. Speakers on that panel were Miss Jane Woodruff, train hostess, Gulf, Mobile & Ohio; King Heiniger, switchman, EJ&E; Charles A. McCarthy, assistant car shop foreman, Louisville & Nashville; and Richard E. Quinlan, clerk, Texas Pacific-Missouri Pacific Terminal of New Orleans.

Community Partners—Other features of the convention program included brief talks by Commissioner Victor H. Schiro, representing the city of New Orleans, and by Clay Shaw, managing director of the Louisiana Purchase 150th Anniversary celebration; presentation at a "President's Breakfast" of a one-act skit, "A Day of Judgment," by George McCann, assistant editor of the Chesapeake & Ohio magazine, Tracks; and a banquet address by Walter Cowan, city editor of the New Orleans States, and a former editor of the GM&O Magazine.

Newspapers, Mr. Cowan pointed out, have much in common with railroads, in that both are "community enterprises, with an obligation to provide good service and to promote community welfare." Also, radio and television have imposed on newspapers problems similar to those which railroads face as a result of air and highway competition.

The railroads, he suggested, "might take the lead" in "bringing together," with resulting benefit to themselves, the urban and rural interests in their respective territories, with the object of reducing the "misunderstanding" which he said so often exists between a large metropolitan center and its surrounding territory.

New Officers—Clifford A. Somerville, editor-in-chief of the Boston & Maine Magazine, was elected president of the association. William B. Grumley, Nickel Plate, was advanced from second vice-president to first vice-president, and was succeeded as second vice-president by John Green, of the Reading. George P. McCallum, Maine Central, was elected secretary, while Harry F. Tate, Jr., advertising agent, Missouri-Kansas-Texas, continues as treasurer. The executive committee includes, in addition, Hugh Lee Fitts, staff editor of the Missouri Pacific Magazine, and retiring president of A.R.M.E.A., and



ERIE PASSENGER TRAINS are getting a new color scheme, with green as the basic color, and a wide light gray panel outlined in yellow along the sides. Erie officers say the change is a result of "passenger preference."

Marshall W. Hamil, Cotton Belt, Melvin L. Shepherd, Santa Fe, and Albert J. Wilson, Union (Pittsburgh).

Under what Mr. Fitts described as a "lame duck" amendment to the association's by-laws, the new officers assumed their duties at the end of the convention instead of, as heretofore, at the beginning of the following calendar year. Another by-law change provided for establishment of a standing Projects Committee, initially headed by Clifford G. Massoth, of the Illinois Central, "to formulate a long-range program for strengthening and improving A.R.M.E.A. and promoting attainment of its objectives."

The association's 1954 convention will be held at the Mt. Royal Hotel, Montreal, September 26-28.

Labor & Wages

Horning Asks Amicable Settlement of Disputes

"Strikes or lockouts are uncalled for in the railroad industry, in which the public has such a great interest," L. W. Horning, vice-president—personnel, New York Central, said in Chicago on October 12. Mr. Horning, addressing the 16th general assembly of the American Train Dispatchers' Association, emphasized that "a way must be found to adjust labor-management disputes in an amicable way, without inconvenience to shippers and passengers, or otherwise the public may say 'a plague on both your houses' and impose restrictive laws" which neither party to the dispute would like.

The NYC executive called for greater cooperation between the dispatchers' organization and railroads in solving problems in which they have a mutual interest. He listed the problems as improvement of service; meeting competition; promoting courteous relations with passengers and shippers; promotion of safety practices; and recognition that labor does not gain in the long run when make-work restrictions are imposed on railroads.

Cab Drivers Won't Cross S.U.N.A. Picket Line

A strike of members of the Switchmen's Union of North America on property of the St. Paul Union Depot Company has affected freight operations of the Chicago Great Western into South St. Paul. The CGW's only access to its South St. Paul yards is over a Union Depot bridge—an arrangement in effect since floodwaters damaged the CGW's own bridge beyond repair two years ago.

The strike is another incident in the long history of S.U.N.A. efforts to gain all switching jobs on the property by seeking to have them handled only by depot company employees. At present, most of the roads do their own switching and all but the CGW and the Great Northern have contracts with the Brotherhood of Railroad Trainmen.

Pickets—So far the tieup has not affected any passenger operations—not even those of the CGW. But passengers of all St. Paul lines have been conscious of the walkout because city taxi drivers—members of the A.F. of L. Teamsters Union—have refused to cross S.U.N.A. picket lines at the passenger station. They will accept passengers for the station, but discharge them on a public street nearby instead of using the station driveway. The depot company's redcaps, on the other hand, have been accommodating passengers from wherever cabs discharge them.

The depot company also experienced a brief flare-up of "picket-line-itis" among mail terminal employees who stayed off the job despite instructions to the contrary from the local general chairman of the Brotherhood of Railway Clerks. A phone call from B.R.C. President George M. Harrison, in Washington, D.C., brought most of these men back to work in a day or so, however.

A depot company spokesman said the switchmen's pickets were "no trouble at all," and that operations throughout the property were "practically normal."

Operations

"Piggy-Back" Brightest Hope—Fraser

Katy chief urges all segments of labor to cooperate so plan will not be stymied by jurisdictional quarrels

The first railroad president to bespeak, publicly, his enthusiasm for "piggy-back" transportation of truck trailers on railway flat cars is Donald V. Fraser of the Missouri-Kansas-Texas. Giving his observations on the long-term outlook for railroads (20 years or more) before the Railway Tie Association's annual meeting at Atlanta, Ga., on October 15, he said:

"Railroad management faces the greatest challenge of its history if it is to keep abreast of demands in the new economy. When I attempt to evaluate what the future holds for the railroad industry, I arrive at the firm conclusion that one of the greatest needs is a more intensive program of research and development. To my mind the most dramatic, and probably the one which will have the most far-reaching effect, is the much-publicized 'piggy back' idea of hauling motor truck trailers on railroad flat cars.

"I feel that this offers one of the brightest hopes in the entire transportation picture.

"Such a development provides the railroads and the long-distance truck industry with an opportunity to cooperate to their mutual advantage through a new type of coordinated service. It could benefit the railroads by restoring much of the freight revenues they have lost, and alleviate the trucking industry's most pressing problem by reducing their dangerously mounting costs. The general public would also gain tremendous savings in tax dollars now expended to maintain highways through reduction of heavy traffic loads on the roads, and by cheaper and better overall transportation service.

"I think the railroad industry and all other transportation agencies should approach this and other revolutionary ideas with open minds. They should explore every avenue to bring about a feasible and profitable cooperative method for improving our transportation service."

Later, Mr. Fraser warned that "all segments of labor must cooperate," so the "jurisdictional problem. . . will not stymie our best hopes."

. . . **Former** diesel locomotive air horns—the single-toned variety—are now being used by Abilene, Tex., for disaster warning purposes. Local defense groups are spotting them throughout the city; they are effective within a half-mile radius.

L&N Joins Complainants In Per Diem Dispute

The Louisville & Nashville has entered the per diem dispute on the side of railroads supporting the $2.40 rate.

The L&N last week obtained permission to intervene in a pending I.C.C. case, docketed as No. 31358 (*Railway Age*, September 28, page 11). This proceeding involves a complaint, filed by 19 roads, asking the commission to find the $2.40 rate is just and reasonable, and that "uniform observance" is required.

Included in the L&N's petition was a statement that recent per diem rates, including the $2.40 rate, have been fair and reasonable. The carrier said it has advised "defendant" roads of its intention to insist upon per diem payments "at such agreed rates."

Meanwhile, the I.C.C. announced that a "prehearing conference" in the case would be held at Washington, D. C.,

October 21. Commissioner Knudson and Examiner Hosmer will conduct the conference.

Law and Regulation

Motor Carrier Board Created by the I.C.C.

To relieve its members of "as much detail as possible," the Interstate Commerce Commission has created a Motor Carrier Board with power to act initially in four types of proceedings.

The board will consist of three members, including a chairman, all commission employees. It will begin functioning November 16, and the members have not yet been designated.

Proceedings in which the board will have power to act initially will be: (1) requests by applicants to dismiss applications for certificates and permits, and for licenses to act as transportation brokers in proceedings which have not involved taking testimony at a public hearing; (2) pleas for temporary authority to conduct common or contract motor carrier operations; (3) uncontested motor carrier revocation proceedings, where there has not yet been any taking of testimony, and (4) applications relating to transfer of certificates or permits which have not involved taking testimony.

The board also will have authority to certify any matters to the commission's Division 5 for decision. That division will serve as the appellate division as to all initial actions of the board.

N.P.A. Successor Is B.D.S.A.

The Department of Commerce has created the Business and Defense Services Administration as one of its primary units. Charles F. Honeywell, who has been special assistant to Secretary Weeks, has been named administrator of B.D.S.A.

It will continue the "residual defense and mobilization functions" of the former National Production Authority and carry out "practical programs of teamwork between business and government . . . through an organized exchange of timely ideas, information and services."

In B.D.S.A. will be 25 industry divisions, including the Shipbuilding, Railroad, Ordnance and Aircraft Division.

Competitive Transport

Round-the-World Lines Get Intercoastal Rights

To augment water carrier service between Pacific and Atlantic ports without authorizing additional services in the opposite direction, the Interstate Commerce Commission has adopted the device of granting eastbound rights to round-the-world ship lines.

Such rights to transport commodities generally (on a seasonal basis and with other restrictions) have been granted to the Isbrandtsen Company. The decision by the commission's Division 4 was in the No. W-1041 proceeding.

In W-1033 (Sub-No. 2), the division gave States Marine Corporation, another "world-wide" carrier, eastbound intercoastal rights covering transportation of rough or dressed lumber and timber.

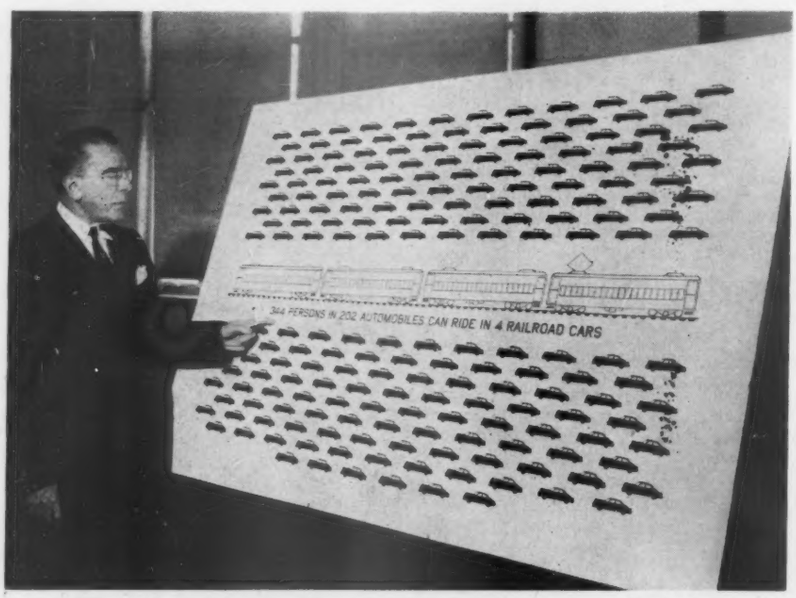
Meanwhile, in W-1019, the division has denied the application of West Coast Trans-Oceanic Steamship Line, which sought authority to operate intercoastal services in both directions. In that report, the division had this to say:

"The record is convincing that the addition of another intercoastal carrier in westbound trade would no doubt result in some of the certificated carriers operating at a deficit and conceivably retiring from the trade. . . . There remains to be considered the question of whether the applicant could profitably carry on an eastbound service. . . . Based on this record, we are convinced that without authority to operate its ships in westbound service, any attempt to perform an eastbound service only would prove unsuccessful. . . ."

Engineer Board Executive Sessions Open to Public

Executive sessions of the Army's Board of Engineers for Rivers and Harbors are now open to the press and public. The end of the former closed-meeting policy came at an October 15 session in Washington, D. C.

The executive sessions are held to pass upon river and harbor and flood control field surveys, and to approve board recommendations to the Chief of Engineers who in turn formulates his recommendations to Congress. The present Chief of Engineers is Major General Samuel D. Sturgis, Jr. In announcing the new policy, he said it may still be "necessary" to hold closed executive sessions "very infrequently . . . in the interests of the government or individual citizens."



E. D. OSTERHOUT, passenger traffic manager of the Reading, with an exhibit he used in a recent address before the Philadelphia Urban Traffic Symposium. Discussing reduction of motor vehicle traffic in Philadelphia's business district, Mr. Osterhout said that because of the city's network of high-speed rail lines converging into the downtown area there is no need for acute traffic congestion. His exhibit showed how it would take 202 automobiles to carry the same 344 persons who could ride in a four-car electric suburban train on the Reading.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended October 10 totaled 804,070 cars, the Association of American Railroads announced on October 15. This was a decrease of 8,484 cars, or 1 per cent, compared with the previous week; a decrease of 38,727 cars, or 4.6 per

cent, compared with the corresponding week last year; and a decrease of 64,613 cars, or 7.4 per cent, compared with the equivalent 1951 week.

Loadings of revenue freight for the week ended October 3 totaled 812,554 cars; the summary for that week, compiled by the Car Service Division, A. A. R., follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, October 3

District	1953	1952	1951
Eastern	137,548	140,096	143,373
Allegheny	156,882	166,654	171,166
Pocahontas	56,643	54,772	67,062
Southern	126,123	133,600	135,185
Northwestern	140,986	152,942	140,439
Central Western	130,268	134,819	135,369
Southwestern	64,104	69,037	66,163
Total Western Districts	335,358	356,798	341,971
Total All Roads	812,554	851,920	858,757
Commodities:			
Grain and grain products	55,236	52,960	54,192
Livestock	13,977	15,234	17,828
Coal	135,900	135,923	159,679
Coke	12,915	14,843	15,814
Forest products	43,010	45,885	46,100
Ore	80,012	95,306	81,101
Merchandise l.c.l.	71,830	75,436	76,504
Miscellaneous	399,674	416,333	407,539
October 3	812,554	851,920	858,757
September 26	819,709	862,065	864,575
September 19	823,884	873,596	863,690
September 12	710,554	881,291	850,812
September 5	799,079	746,882	732,769
Cumulative total 40 weeks	29,880,593	28,869,816	31,202,456

July Accidents

The Interstate Commerce Commission has made public its Bureau of Transport Economics and Statistics' preliminary summary of "steam railway" accidents for July and the first seven months of this year. The compilation, subject to revision, follows:

	Month of July		7 mos. ended with July	
	1953	1952	1953	1952
Number of train accidents*	781	759	5,241	5,626
Number of accidents resulting in casualties	42	34	315	312
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	126	113	571	570
Injured	124	93	567	548
Passengers on trains:				
(a) In train accidents*				
Killed	1	..	20	..
Injured	79	32	415	170
(b) In train-service accidents				
Killed	1	3	13	6
Injured	176	175	1,031	1,035
Travelers not on trains:				
Killed	..	1	4	8
Injured	48	57	451	421
Employees on duty:				
Killed	31	29	181	209
Injured	1,731	1,535	11,300	11,598
All other nontrespassers:**				
Killed	116	111	897	875
Injured	325	320	3,054	3,066
Total — All classes of persons:				
Killed	275	257	1,686	1,668
Injured	2,483	2,212	16,818	16,838

*Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of $325 or more to railway property in 1952. Beginning January 1, 1953, this minimum was raised to $350. Only a minor part of the total accidents result in casualties to persons, as noted above.

**Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:				
Killed	109	91	841	788
Injured	178	185	2,027	2,017

People in the News

Gen. Robertson New Head Of British Transport

General Sir Brian Robertson, who has succeeded Lord Hurcomb as chairman of the British Transport Commission, was born on July 22, 1896. General Robertson has been released from his appointment as Adjutant General of the Middle East Land Forces to assume the chairmanship of the commission.

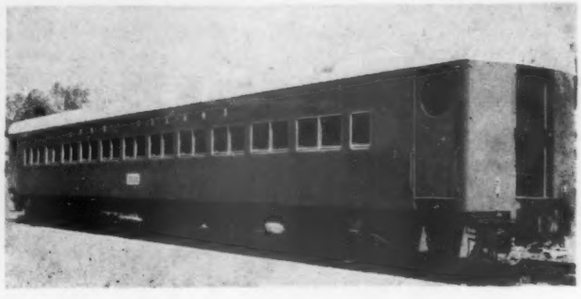
Smith Succeeds Vore At Defense Department

Earl B. Smith, vice-president and director of traffic for General Mills, has been appointed Director of Transportation and Communications in the Department of Defense. He succeeds Kenneth L. Vore, who has served as Director of Transportation since April 1951.

Mr. Smith, on leave from General Mills, will take office November 1. Mr. Vore, who is returning to private industry October 20, will continue to serve the department in a consulting capacity.

Assistant Defense Secretary Charles S. Thomas revealed the pending change when he spoke at the National Defense Transportation Association convention last week in Louisville, Ky. Mr.

ALLYN C. BREED, who has been appointed assistant director of the Bureau of Locomotive Inspection of the Interstate Commerce Commission, was originally appointed to the bureau, then known as the Bureau of Locomotive Boiler Inspection, on August 1, 1911. Born in Peoria, Ill., in 1882, Mr. Breed worked for the Peoria & Pekin Union and the Chicago & Alton from 1898 until his appointment to the bureau.



FIRST TWO of the Long Island's new electric commuter coaches began regular full-time service October 7. The cars, costing $125,000 each, are the first of 20 being built for the road by the Pullman-Standard Car Manufacturing Company (*Railway Age*, March 24, 1952, page 56). Interiors (above), are finished in color schemes selected last spring by LI passengers; Blue-green walls, cream ceiling, blue upholstery, rust-red shades and end walls, and red vinyl tile aisle strip. Smooth exterior lines of the cars, including built-in roof air intakes and ventilators, are shown below. The cars feature automatic heat and cooling controls. They are being delivered at the rate of two a week.

Thomas said, also, that the new transportation setup will be lodged in the office of the Assistant Secretary of Defense for Supply and Logistics, rather than in the office of the Secretary of Defense.

Equipment & Supplies

FREIGHT CARS

5,706 Freight Cars Delivered in September

New freight cars for domestic use delivered in September totaled 5,706, compared with 5,557 last August and 3,762 in September 1952, the American Railway Car Institute and the Association of American Railroads have announced jointly.

Domestic orders were placed in September for 3,914 freight cars. The backlog of cars on order and undelivered on October 1 was 42,198, a drop of 3,537 below the September 1 backlog, and 38,098 below that of January 1, which totaled 80,296. A breakdown by types of cars ordered and delivered in September, and of cars on order October 1 follows:

Type	Ordered Sept. '53	Delivered Sept. '53	On Order & Undelivered Oct. 1, '53
Box—Plain	1,950	1,701	13,022
Box—Auto	0	0	0
Flat	265	103	2,744
Gondola	201	2,343	9,412
Hopper	210	86	5,318
Covered Hopper	100	432	3,539
Refrigerator	280	191	2,744
Stock	0	0	0
Tank	850	553	3,910
Caboose	0	10	156
Other	58	287	1,353
TOTAL	3,914	5,706	42,198
Carbuilders	1,749	3,468	24,984
Railroad Shops	2,165	2,238	17,214

CNR Orders 4,780 Cars, At Cost of $37,590,000

The Canadian National has ordered 4,780 freight cars (including 400 for the Grand Trunk Western), at a cost of $37,590,000. Orders were placed as follows: American Car & Foundry Co.—100 50-ton box cars and 100 70-ton flat cars (all for the GTW); General American Transportation Corporation—200 70-ton high-side gondola cars (also for the GTW); National Steel Car Corporation—1,400 50-ton box cars and 210 70-ton longitudinal hopper cars; Canadian Car & Foundry Co.—1,200 50-ton box cars, 120 50-ton Hart convertible cars and, for the narrow-gage Newfoundland district, 100 30-ton flat cars; Eastern Car Company—250 50-ton box cars, 500 70-ton drop-end high-side gondola cars, 300 70-ton triple hopper cars and, for Newfoundland, 100 30-ton steel box cars; Marine Industries, Ltd.—200 70-ton covered hopper cars.

"SAFETY BANK" DEPOSIT is made by Santa Fe Switchman Harold B. Williams, of Los Angeles, into deposit box held by W. J. Tillman, safety supervisor, San Bernardino. If Mr. Williams completes a specified period without injury, his name remains "on deposit" and thus eligible for 10 merchandise awards. If he is injured, however, he must make a "withdrawal" from the safety bank.

COMMUNICATIONS

Duluth, South Shore & Atlantic.—This road recently inaugurated Teletypewriter exchange service between its general traffic department at Marquette, Mich., and agencies in Chicago, Detroit, Minneapolis and Duluth. It is planned soon to expand the service to include the balance of the sales and service agencies in Boston, Cleveland, New York, Pittsburgh, Portland, Ore., Seattle and Washington, D.C.

Supply Trade

American Locomotive Company will build a warehouse and office building at Bingham avenue and Ray street, St. Louis, which is expected to be completed late next spring. The one-story structure, with 30,000 sq. ft. of floor space, will serve as Alco's diesel locomotive parts storage depot in the Southwest, with space available for the district sales staff.

Supplementing his duties as vice-president and director of **Electric Storage Battery Company, Roland Whitehurst** has been appointed general manager of the industrial products division. The company's operations have been separated into two divisions, industrial products and automotive products.

The **Quaker Rubber Corporation,** division of **H. K. Porter Company,** has opened a new factory warehouse and sales office at 4384 E. Bandini boulevard, Los Angeles, under supervision of **James Joyner.**

Forest S. Burtch has been appointed product sales manager of the newly formed construction materials department of **John A. Roebling's Sons Corporation,** subsidiary of **Colorado Fuel & Iron Corp. Elmer A. Trask,** Chicago district manager, has been named to succeed Mr. Burtch as wire rope sales manager. Both will have headquarters at Trenton, N.J.

Edward R. Cassidy has been appointed Cleveland district traffic manager of American Steel & Wire division of **U.S. Steel Corporation,** succeeding **Harry M. Knobel,** retired. Mr. Cassidy has been identified with the traffic department of this and other subsidiaries of U.S. Steel for many years.

Clarence E. Killebrew has been appointed marketing and sales manager of **Clark Equipment Company's** construction machinery division.

OBITUARY

Herbert D. Tietz, 55, manager of sales of the Inco nickel alloys department of International Nickel Company, at New York, died October 11.

New Facilities

Canadian National.—A contract has been awarded to the Assiniboia Construction Company, Calgary, Alta., for rebuilding the substructure of a bridge across Red Deer river. The bridge was washed out in April 1952 when ice in the river rose to record levels.

Chicago & North Western.—A new yard office is being constructed at the National Avenue yard, Milwaukee, at a cost of $39,000. Additional protection for the center and east piers of the Mississippi River bridge at Winona, Minn., will take the form of sheet steel piling, to be installed at a cost of $60,000. A 150,000-gal. capacity diesel fuel storage tank is being erected at Huron, S.D., at a cost of $25,500. At Partridge, Mich., additional yard tracks are to be constructed; grading and bridgework in connection with this project are currently in progress at a cost of $41,000. Passenger station buildings and platforms at Council Bluffs, Iowa, are being remodeled and repaired at a cost of $41,500.

Milwaukee. — Construction work has begun on a new passenger terminal for the Milwaukee at Tacoma, Wash. The project includes a new station

(*Continued on page* 102)

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on page 102)

Another

TRAIN MASTER

DEMONSTRATION OF VERSATILITY

ON THE NEW YORK CENTRAL SYSTEM

... DEMONSTRATED ON H

Passenger

The Mercury arrives Cincinnati behind the 4800 horsepower of TM-1 and TM-2.

Humping

During the layover, awaiting the return passenger run to Cleveland, TM-2 works the West Sharon Hump. TM-1 goes out on road transfer.

Mail and Express

Mail and express for Chicago is the next assignment for Train Master power after arriving Cleveland.

NEW YORK CENTRAL SYSTEM

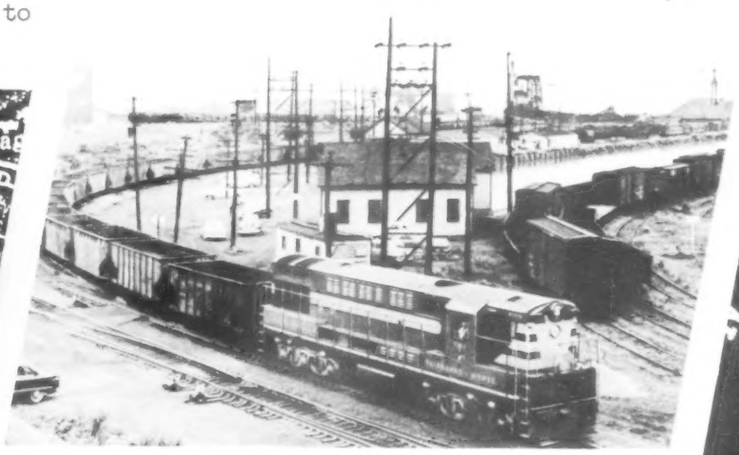
Fast Freight

Fast freight was another major assignment of the Train Master on the New York Central -- over many divisions.

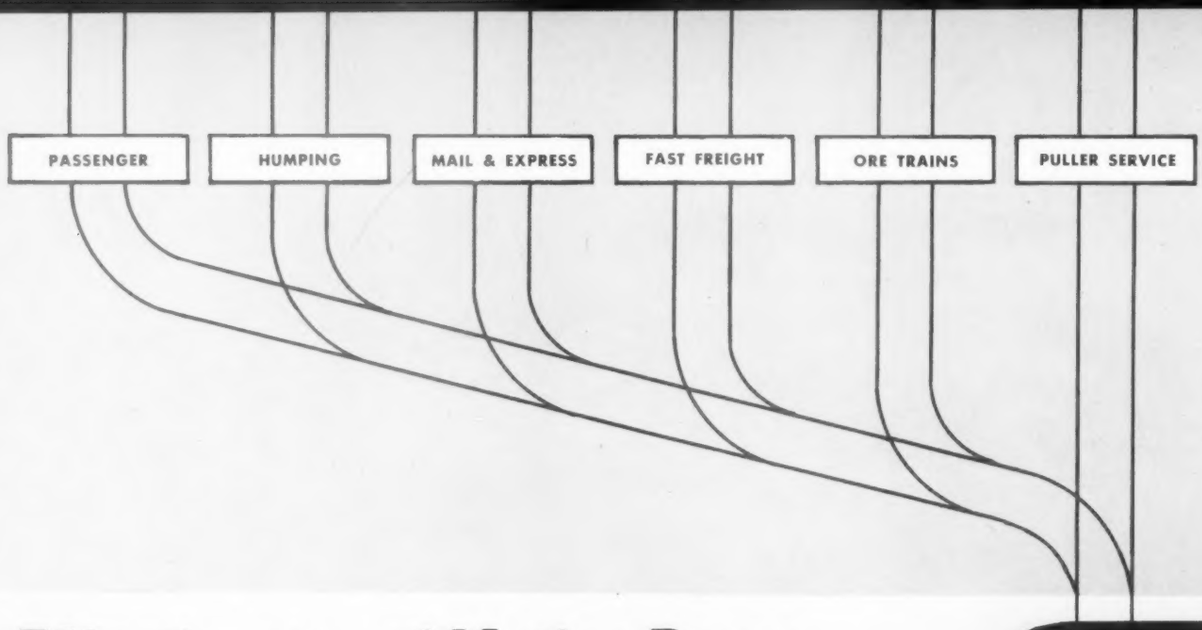
Ore Trains

Ore movements between Buffalo, Ashtabula and Youngstown ... all were assigned to the Train Master Demonstration.

Puller Service



Between ore trains, TM-1 pushed coal up on the ore docks, and TM-2 was placed in puller service over Carson Hill.



Effective use of Motive Power

Two Train Master units [redacted], totaling 4800 horsepower, give you the power for fast over-the-road service on passenger and freight runs . . .

Splitting them in the terminal gives you one unit [redacted] for heavy humping or yard switching, and another unit [redacted] for transfer, suburban, extra passenger or local freight.

Such versatility . . . ability to handle every major assignment . . . is the answer to effective use of motive power on your road.

THAT VERSATILITY IS THE RESULT OF THE COMBINATION OF THESE TM FEATURES

- 2400-HORSEPOWER OPPOSED-PISTON DIESEL ENGINE
- SIX HIGH-CAPACITY TRACTION MOTORS
- TOTAL WEIGHT OF 375,000 POUNDS —ALL ON DRIVERS
- 3000-HORSEPOWER DYNAMIC BRAKE
- 4500 LB/HR STEAM GENERATOR

THE FAIRBANKS-MORSE

TRAIN MASTER

the most useful locomotive ever built

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL LOCOMOTIVES AND ENGINES • RAIL CARS AND RAILROAD EQUIPMENT • ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • HAMMER MILLS • MAGNETOS

Ad

October 19,

RSEPOWER
D-PISTON
ENGINE

SIX
APACITY
N MOTORS

WEIGHT
0 POUNDS
DRIVERS

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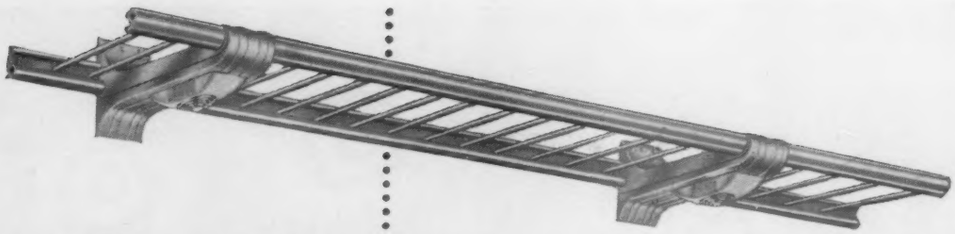
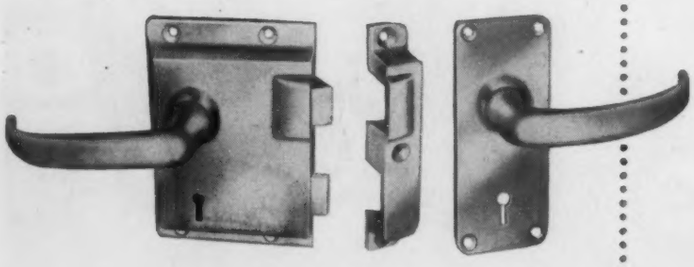
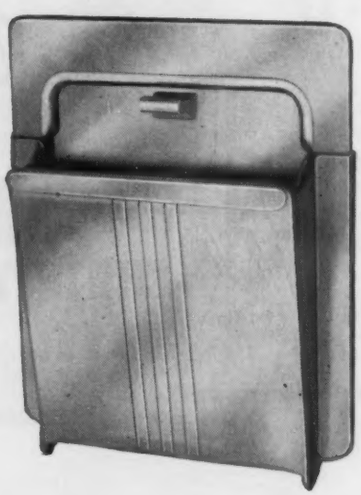


Add **Lasting Beauty** to Car Interiors



with Adlake Hardware

Adlake 96th year of serving the transportation and building industries



Designed in both modern and traditional styles, ADLAKE Hardware adds beauty, as well as efficiency, to car interiors . . . and its sturdy construction assures life-long dependability.

In addition to a full line of hardware, ADLAKE manufactures such items as vestibule and window curtains, diaphragms —and, of course, famous ADLAKE "Breather" Windows, the windows chosen by all leading railroads.

Every piece of ADLAKE equipment is built for long service, minimum maintenance, and easy, certain operation . . . and every piece reflects the experience gained in almost a century of manufacturing for the transportation industry. For complete information, write for our catalog No. 150 today. The Adams & Westlake Company, 1150 N. Michigan, Elkhart, Indiana.

THE

Adams & Westlake COMPANY

Established 1857
ELKHART, INDIANA, New York, Chicago
Manufacturers of ADLAKE Equipment and Specialties for the Railway Industry

Squeezing the HIGH out of Mr. Overhead

Right now, a lot of plants are giving Mr. Overhead a thorough going over. And while in many areas nothing can be done about high costs, in others a little figuring may show big chances for economy.

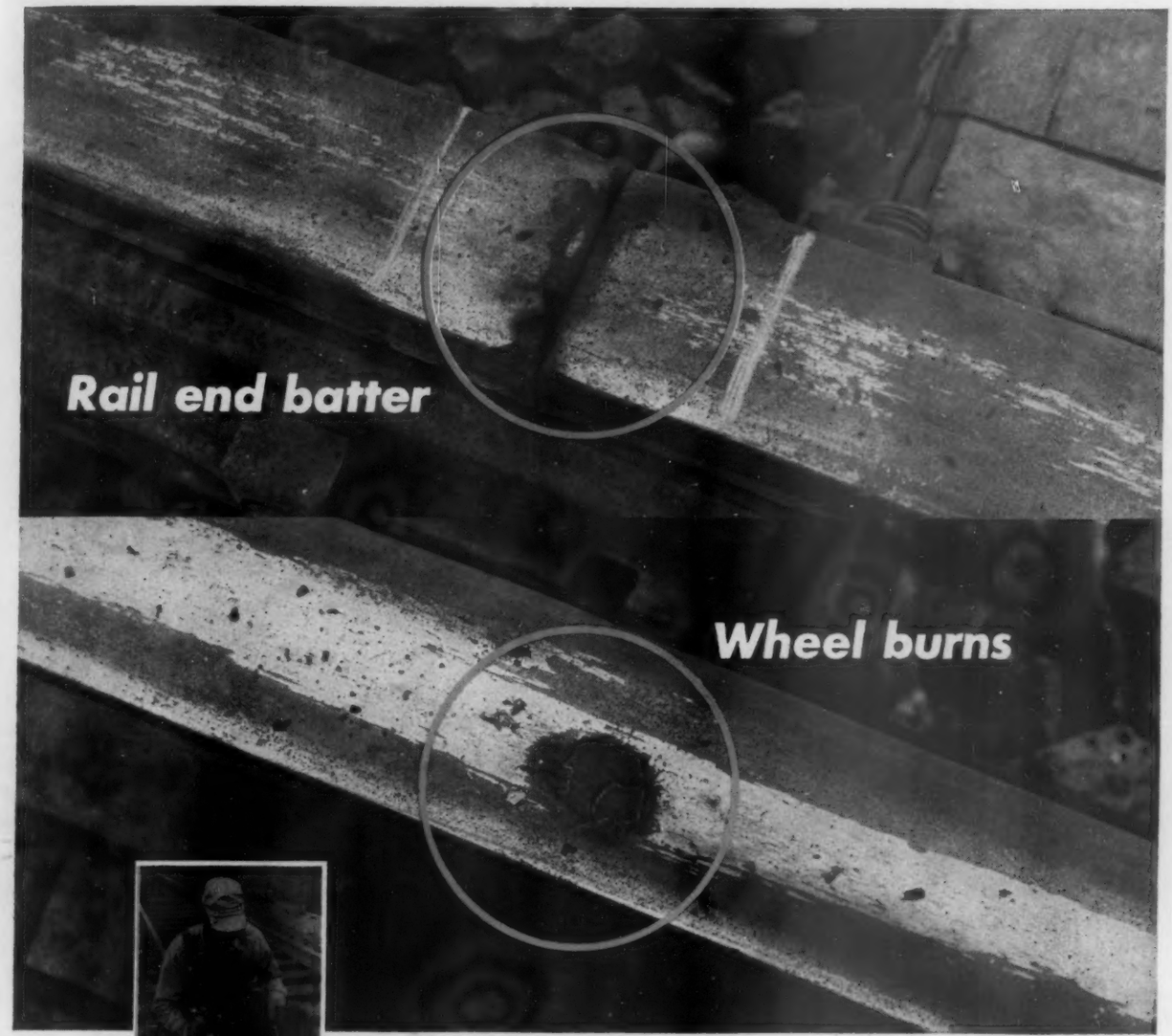
Take piping maintenance for instance. At today's labor rates, the cost of servicing inferior and obsolete piping equipment is higher than ever. But it can be reduced—quickly—with better quality equipment that also strengthens your guard against production losses.

Thrifty buyers know this—that's why they insist on Crane Quality equipment. They know it assures longer life, greater dependability, lower ultimate cost . . . and that Crane provides the best selection for the piping needs of every industry.

Crane Co., *General Offices:* 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas.

CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING



one rod for both

Airco Railroad Rod provides a single answer to these two common types of rail damage. You can use it to build up battered and chipped rail ends, or, by a simple adjustment of the welding torch's oxyacetylene flame, to fill in and smooth out rail burns. Hardness of the deposit is 251 to 350 Brinell — well within the required range for both applications. Airco Railroad Rod is standard on many major railroads, not only because it eases storage problems but also because of the high quality of its deposit.

Your Airco railroad representative will be glad to arrange an actual demonstration. Why not get in touch with him today?

AIRCO

OFFICES IN
MOST PRINCIPAL CITIES

AIR REDUCTION

60 East 42nd Street • New York 17, N. Y.

Air Reduction Sales Co. • Air Reduction Magnolia Co. • Air Reduction Pacific Co.
Represented Internationally by Airco Company International

Divisions of Air Reduction Company, Incorporated

at the frontiers of progress you'll find

AN AIR REDUCTION PRODUCT

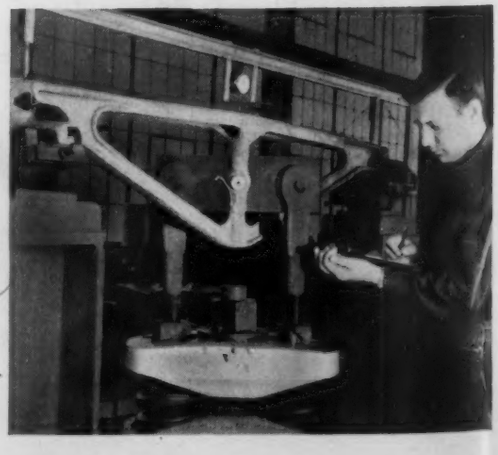
Refrigerator car, owned and operated by Wilson Car Lines, who cooperated with ASF by keeping records of service duration and car mileage. Beam shown above is one of the four removed from this car.

20% above requirements—on the AAR Static Test

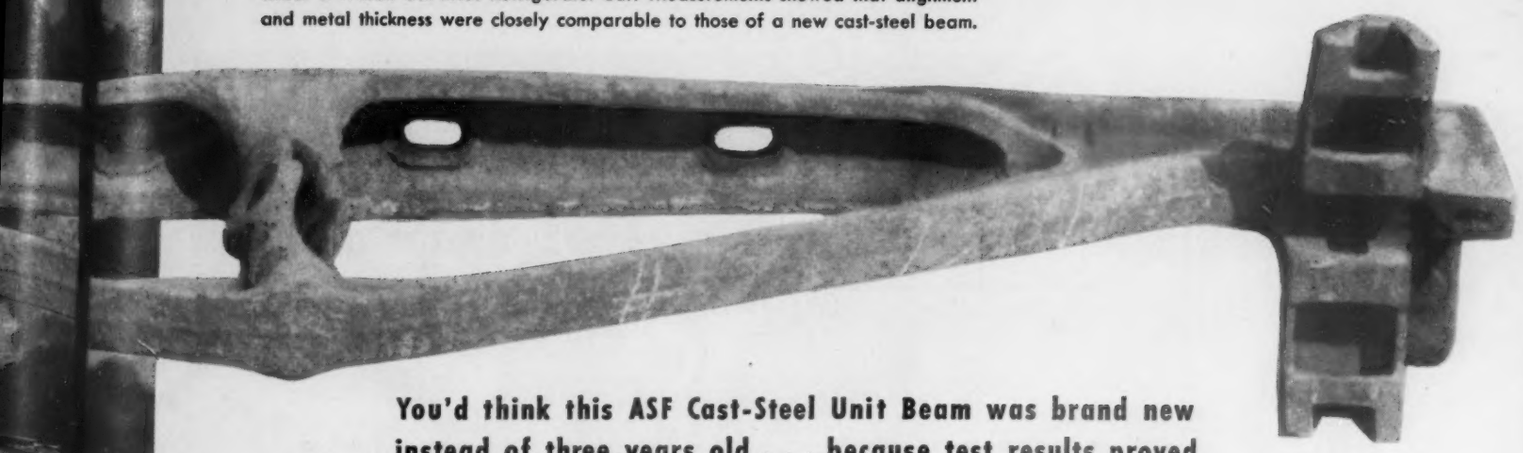
Only .056" deflection at 18,000 lbs., compared to permissible .070" deflection. Two of these beams were then loaded to the breaking point—which proved to be almost *four times* their rated capacity!

38% above requirements—on the AAR Fatigue Test

The two remaining beams withstood an average of 1,032,181 loadings—well over a quarter of a million more than required for AAR certification. (Each loading 18,000 lbs., applied at the rate of 50 per minute.)



Unretouched close-up of ASF Unit Beam—after 34 months and 119,503 miles under a Wilson Car Lines Refrigerator Car. Measurements showed that alignment and metal thickness were closely comparable to those of a new cast-steel beam.



You'd think this ASF Cast-Steel Unit Beam was brand new instead of three years old . . . because test results proved

After 119,503 miles... still above AAR specifications!

Some just-completed tests of ASF Cast-Steel Unit Brake Beams will interest every railroad looking for ways to cut maintenance costs.

The beam shown here is one of a set that has traveled 119,503 miles during 34 months —on a Wilson Car Lines Refrigerator Car. Refrigerator service was deliberately chosen for the test because brine-induced corrosion makes it extra tough on running gear.

Before testing, the four beams were shot-blasted to remove rust and scale. Measurement showed practically no loss of dimension or misalignment—and extremely light wear, considering length of service. For example, unit extensions were only about 1/16" undersize! And, *here are the results of static and fatigue tests—made according to AAR specifications:*

	STATIC TEST		FATIGUE TEST	
	Deflection at 18,000 lbs.	Set, after 30,000 lbs.	Maximum load before fracture	18,000 lb. loadings
AAR Requirements	.070"	.010"	(None)	750,000
Average performance of ASF Unit Beams in service 3 years	.056"	.0012"	68,950 lbs.	1,032,181

In short, still far above standards! Find out more about the beam that *maintains* its strength and shape during *prolonged service . . . and reduces your maintenance and replacement costs.* Write us, or ask your nearest ASF Representative for more information!

Like modern side frames that replaced arch bar trucks . . . the MODERN BRAKE BEAM is the

ASF **One-Piece Cast-Steel UNIT BRAKE BEAM**

AMERICAN STEEL FOUNDRIES

410 North Michigan Avenue, Chicago 11, Illinois

Look for this MINT ◯ MARK on the running gear you specify

Canadian Sales: International Equipment Co., Ltd., Montreal

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Akron, Canton & Youngstown	Aug.	171	$573	....	$585	$483	$66	[$88	$6	$60	$52	$15	$39	$153	$355	$342	60.7	70.8	$230	$100	$94	$84
	8 mos.	171	4,237	....	4,355	3,624	560	601	47	421	434	123	318	1,155	2,722	2,658	62.5	73.4	1,632	711	674	464
Atchison, Topeka & Santa Fe	Aug.	13,095	40,812	$5,479	50,516	44,010	7,735	7,277	752	9,296	8,623	1,754	1,104	15,983	36,267	34,687	71.8	78.8	14,249	8,246	5,989	3,838
	8 mos.	13,095	349,665	34,996	418,508	392,014	61,083	56,932	5,390	74,196	72,319	13,721	9,444	124,698	286,446	279,225	68.4	71.2	132,061	75,348	54,686	46,742
Atlanta & St. Andrews Bay	Aug.	82	309	2	319	304	37	42	3	20	21	4	7	67	150	152	47.0	49.8	169	84	48	47
	8 mos.	82	2,483	12	2,556	2,409	248	290	23	172	185	34	65	544	1,148	1,180	44.9	49.0	1,408	755	406	377
Atlanta & West Point	Aug.	93	277	46	364	356	65	41	6	61	61	13	15	148	310	309	85.1	86.7	54	24	24	1
	8 mos.	93	2,251	334	2,969	3,020	433	367	51	540	476	102	128	1,215	2,504	2,447	84.3	81.0	465	218	152	137
Western of Alabama	Aug.	133	331	44	407	371	50	44	8	63	72	17	16	149	298	297	73.2	80.2	109	68	54	34
	8 mos.	133	2,526	322	3,151	3,074	450	393	58	546	547	128	132	1,146	2,454	2,386	77.9	77.6	698	404	331	301
Atlantic & Danville	Aug.	205	134	....	137	148	35	25	2	15	11	5	11	50	124	111	90.9	75.1	12	11	—25	5
	8 mos.	205	1,288	....	1,305	1,262	278	264	15	120	103	38	95	409	999	968	76.5	76.7	306	86	26	60
Atlantic Coast Line	Aug.	5,379	9,453	1,458	11,853	11,968	2,404	2,80	179	3,310	3,308	541	354	4,712	11,343	11,638	95.7	97.2	509	Cr. 300	725	613
	8 mos.	5,379	91,218	14,484	114,530	116,113	19,549	19,820	1,273	27,797	23,029	4,335	3,008	41,790	97,101	90,169	84.8	77.7	17,430	8,075	6,325	8,330
Charleston & Western Carolina	Aug.	343	506	2	524	461	181	157	24	102	121	42	17	179	492	480	94.0	104.2	31	10	34	7
	8 mos.	343	4,657	14	4,797	4,407	1,227	1,116	57	804	903	340	137	1,365	3,647	3,671	76.0	83.3	1,150	535	604	387
Baltimore & Ohio	Aug.	6,186	37,301	1,773	41,814	39,673	5,682	5,149	513	8,316	7,409	1,028	897	15,645	32,222	29,984	77.1	75.6	9,592	3,683	4,378	4,578
	8 mos.	6,186	276,774	15,052	312,312	285,982	40,992	37,415	4,295	65,477	59,776	8,129	7,255	118,334	245,605	230,893	78.6	80.7	66,707	24,504	32,041	28,109
Staten Island Rapid Transit	Aug.	29	235	49	290	322	49	61	14	25	26	2	2	129	236	289	81.2	89.7	54	36	—10	—26
	8 mos.	29	1,901	398	2,335	2,493	472	447	105	238	257	15	14	1,153	2,130	2,170	91.2	87.0	205	290	—273	—164
Bangor & Aroostook	Aug.	602	666	39	739	785	200	250	25	245	214	94	21	236	757	761	102.5	96.9	—19	62	121	72
	8 mos.	602	8,786	276	9,393	9,106	2,100	1,970	145	1,884	1,847	702	165	2,396	7,051	6,955	75.1	96.4	2,342	1,311	1,535	1,182
Bessemer & Lake Erie	Aug.	213	2,888	2	2,904	3,394	232	207	16	541	556	138	22	537	1,445	1,389	49.8	40.9	1,459	1,055	696	1,309
	8 mos.	213	20,377	5	20,534	15,227	1,739	1,559	186	5,728	4,567	1,049	168	3,728	12,114	10,527	59.0	69.1	8,419	5,782	4,189	3,122
Boston & Maine	Aug.	1,679	5,744	1,137	7,695	7,385	1,314	1,309	169	1,021	1,127	176	108	3,086	5,859	5,936	76.1	80.4	1,836	797	593	445
	8 mos.	1,679	45,526	7,765	59,899	58,142	10,551	10,832	1,357	8,955	9,086	1,429	917	24,988	48,143	48,480	80.4	83.4	11,756	5,234	3,400	2,345
Cambria & Indiana	Aug.	35	142	....	142	129	23	22	1	86	67	22	....	22	140	114	98.4	88.4	2	80	89	81
	8 mos.	35	1,185	....	1,186	1,021	153	142	7	749	631	179	1	172	1,130	1,005	95.3	98.4	56	529	629	426
Canadian Pacific Lines in Maine	Aug.	234	246	62	349	334	99	124	5	98	86	17	8	167	387	407	110.9	122.0	—38	28	—76	—121
	8 mos.	234	4,202	407	4,870	4,706	902	988	41	1,108	788	136	65	1,918	4,114	3,820	84.5	81.2	756	225	244	112
Canadian Pacific Lines in Vermont	Aug.	90	181	15	217	255	96	67	4	35	25	....	7	130	278	226	128.2	89.0	—61	16	—136	—35
	8 mos.	90	1,553	98	1,813	1,784	627	548	32	298	242	2	56	993	2,047	1,870	112.9	104.8	—234	106	—784	—618
Central of Georgia	Aug.	1,786	2,966	224	3,437	3,427	588	569	63	509	600	59	140	1,377	2,815	2,975	81.9	86.8	622	252	333	226
	8 mos.	1,786	25,598	1,596	29,490	28,777	4,759	4,751	488	4,608	4,875	880	1,100	11,254	23,425	24,402	79.4	84.8	6,065	2,638	2,765	1,759
Central of New Jersey	Aug.	617	4,264	532	5,068	5,425	696	754	91	1,003	899	183	78	1,941	3,916	4,243	77.3	78.2	1,152	478	569	494
	8 mos.	617	35,502	3,783	41,847	41,829	5,692	5,449	717	8,289	7,740	1,396	644	17,306	33,648	33,761	80.4	80.7	8,199	3,792	3,322	2,930
Central Vermont	Aug.	422	842	97	1,014	941	219	160	16	116	89	12	16	380	773	698	76.2	74.2	241	41	106	139
	8 mos.	422	6,729	510	7,795	7,273	1,658	1,442	131	1,043	1,243	100	130	2,992	6,166	6,459	79.1	88.8	1,629	336	562	—2
Chesapeake & Ohio	Aug.	5,115	30,253	729	32,838	30,153	3,732	3,989	393	5,512	5,637	1,500	670	9,413	20,655	20,447	62.9	67.8	12,183	5,962	6,710	5,339
	8 mos.	5,115	215,547	5,676	232,515	235,317	31,171	33,157	2,927	43,973	48,282	11,828	5,490	71,996	163,104	171,728	70.1	73.0	69,411	32,041	40,091	34,343
Chicago & Eastern Illinois	Aug.	868	2,586	300	3,130	2,947	431	400	27	557	459	125	137	1,114	2,413	2,223	77.1	75.4	718	225	341	386
	8 mos.	868	19,916	2,167	24,460	22,607	3,110	2,931	225	4,264	3,575	995	1,053	8,687	18,568	17,189	75.9	76.0	5,892	1,945	2,869	2,676
Chicago & Illinois Midland	Aug.	130	675	....	690	438	73	37	6	163	97	23	31	209	519	360	75.2	82.2	172	92	55	13
	8 mos.	130	5,647	1	5,779	4,323	654	490	62	1,241	1,132	186	251	1,763	4,287	3,733	74.2	86.3	1,492	784	507	46
Chicago & North Western	Aug.	7,874	14,692	2,136	18,708	18,848	3,084	2,691	364	3,316	3,125	775	371	7,798	15,439	15,074	82.5	80.0	3,269	1,107	1,173	1,890
	8 mos.	7,874	105,971	15,173	135,532	130,449	23,390	21,593	2,705	25,514	25,336	6,246	3,018	60,838	119,575	118,608	88.2	90.9	15,958	8,666	2,784	—405
Chicago, Burlington & Quincy	Aug.	8,867	20,258	2,109	24,650	24,334	5,027	3,475	352	3,134	3,512	671	471	8,221	17,723	16,325	71.9	67.1	6,927	3,435	2,714	3,196
	8 mos.	8,867	151,598	13,739	183,597	169,543	30,581	26,399	3,035	26,251	27,697	5,539	4,101	64,065	131,616	125,337	71.7	73.9	51,981	27,908	20,612	16,859
Chicago Great Western	Aug.	1,468	2,925	30	3,160	3,168	475	510	45	425	407	120	114	948	2,037	2,212	64.5	69.8	1,123	402	390	339
	8 mos.	1,468	17,901	112	19,275	23,084	3,116	3,874	304	2,403	3,100	957	899	6,055	13,042	16,225	67.7	70.3	6,233	2,367	2,557	2,363
Chicago, Indianapolis & Louisville	Aug.	541	1,636	67	1,851	1,814	371	327	16	286	270	70	85	634	1,468	1,410	79.4	77.7	382	152	160	133
	8 mos.	541	13,001	512	14,540	14,265	2,779	2,567	155	2,174	2,206	557	698	5,003	11,427	11,256	78.6	78.9	3,113	1,143	1,261	1,019
Chicago, Milw., St. Paul & Pacific	Aug.	10,670	18,446	1,666	22,577	24,838	3,994	3,540	397	4,334	4,362	849	496	9,016	18,873	18,825	83.6	75.8	3,705	1,636	1,033	2,347
	8 mos.	10,670	142,023	11,370	171,285	173,724	28,789	27,128	3,060	36,411	36,307	6,846	3,948	68,463	145,807	148,472	85.1	85.5	25,478	11,882	7,476	7,869
Chicago, Rock Island & Pacific	Aug.	7,885	14,056	1,746	17,391	17,313	2,762	2,423	274	2,604	2,818	553	485	5,963	12,647	12,591	72.7	72.7	4,744	1,636	2,101	1,892
	8 mos.	7,908	117,963	13,041	143,975	140,899	18,491	18,247	2,032	21,802	22,763	4,400	3,929	48,427	99,386	102,557	69.0	72.8	44,590	19,141	19,074	15,761
Chicago, St. Paul, Minn. & Omaha	Aug.	1,617	2,642	217	3,097	3,399	523	487	51	417	366	90	64	1,415	2,555	2,566	82.5	75.5	543	180	138	373
	8 mos.	1,617	18,854	1,360	22,012	21,999	3,934	3,563	377	3,432	3,354	715	546	11,171	20,131	19,713	91.5	89.6	1,881	1,440	—1,283	—867
Clinchfield	Aug.	317	2,032	1	2,048	2,035	370	290	24	342	347	94	56	430	1,226	1,148	59.9	56.4	822	227	757	793
	8 mos.	317	16,367	9	16,453	15,887	2,897	2,295	170	2,770	2,667	734	369	3,361	9,729	9,070	59.1	57.1	6,724	1,767	5,847	6,074

(Table continued on next left hand page)

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18 FIELD SALES OFFICES TO SERVE YOU

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Colorado & Southern	Aug.	729	1,288	113	1,514	1,351	239	154	18	153	178	40	32	457	938	888	62.0	65.7	576	299	262	249
	8 mos.	731	9,138	592	10,684	10,013	1,410	1,194	155	1,424	1,598	297	239	3,626	7,147	7,140	66.9	71.3	3,537	1,881	1,553	1,171
Ft. Worth & Denver	Aug.	1,038	1,453	169	1,740	1,827	284	263	39	258	244	38	55	638	1,332	1,326	76.6	72.6	408	122	169	216
	8 mos.	1,038	13,292	1,127	15,631	15,437	2,399	2,351	309	2,099	1,956	279	470	5,165	10,921	11,160	69.9	72.3	4,710	1,779	2,092	1,909
Colorado & Wyoming	Aug.	40	188	....	289	237	10	9	2	29	26	11	1	101	153	145	52.8	61.4	136	84	50	68
	8 mos.	40	1,470	....	2,340	1,740	145	163	15	279	246	87	12	852	1,377	1,181	58.8	67.8	963	577	378	189
Columbus & Greenville	Aug.	168	168	....	177	127	36	7	4	21	25	6	5	51	129	110	73.2	87.1	47	30	13	2
	8 mos.	168	1,314	....	1,375	1,162	286	236	30	204	227	49	34	392	1,068	1,025	77.7	88.2	307	233	112	43
Delaware & Hudson	Aug.	793	4,522	222	4,884	4,729	895	875	69	887	878	76	81	1,636	3,700	3,844	75.8	81.3	1,184	301	921	433
	8 mos.	793	34,233	1,293	36,699	37,379	6,164	5,578	546	6,648	7,606	1,150	676	12,910	28,041	29,865	76.4	79.9	8,658	2,644	6,286	3,991
Delaware, Lackawanna & Western	Aug.	962	5,996	787	7,457	7,925	975	900	150	1,281	1,344	316	173	3,182	5,875	5,900	78.8	74.4	1,582	812	784	1,012
	8 mos.	962	48,430	6,368	60,413	60,584	7,125	6,797	1,217	10,296	11,426	2,456	1,424	25,651	46,684	48,055	77.3	79.3	13,729	6,849	6,768	6,188
Denver & Rio Grande Western	Aug.	2,313	6,892	346	7,477	7,930	877	777	95	1,174	1,151	256	178	2,180	4,705	4,817	62.9	60.8	2,772	1,412	1,166	1,284
	8 mos.	2,318	51,906	2,566	55,385	50,743	7,940	6,933	1,005	9,233	8,994	1,985	1,435	16,564	37,594	36,464	66.7	71.9	18,791	9,760	8,125	6,144
Detroit & Mackinac	Aug.	232	198	....	205	172	35	43	3	23	23	9	5	40	112	118	54.7	68.2	93	47	42	28
	8 mos.	232	1,348	2	1,394	1,327	327	344	26	191	167	76	38	290	930	935	66.7	70.5	464	252	224	185
Detroit & Toledo Shore Line	Aug.	50	704	....	747	640	90	72	3	60	56	18	17	217	398	329	53.2	51.4	349	119	108	104
	8 mos.	50	5,701	....	5,989	4,968	653	612	25	510	485	141	135	1,716	3,126	2,844	52.2	57.2	2,863	1,044	920	655
Detroit, Toledo & Ironton	Aug.	464	1,878	....	1,990	1,346	254	191	21	282	262	85	29	731	1,364	908	68.6	67.5	625	278	283	206
	8 mos.	464	14,277	3	15,095	11,488	1,955	1,571	193	2,014	2,656	617	255	5,880	10,639	8,055	70.5	70.1	4,455	1,886	1,920	1,466
Duluth, Missabe & Iron Range	Aug.	567	7,969	1	9,295	8,981	750	742	54	689	622	103	10	2,122	3,705	3,769	39.9	42.0	5,589	3,810	1,790	3,484
	8 mos.	567	37,168	6	43,190	25,466	4,925	4,994	577	5,883	5,076	803	74	12,451	24,277	20,726	56.2	81.4	18,913	12,779	6,430	1,596
Duluth, South Shore & Atlantic	Aug.	553	609	7	658	786	236	133	12	129	125	20	25	245	656	561	99.7	71.4	2	Cr. 59	27	173
	8 mos.	551	5,345	47	5,691	5,075	1,329	1,019	80	1,202	1,106	162	196	1,832	4,726	4,365	83.0	86.0	966	269	411	271
Duluth, Winnipeg & Pacific	Aug.	175	417	2	430	382	105	102	4	84	78	2	6	194	397	373	92.4	97.6	33	35	—54	—60
	8 mos.	175	3,379	8	3,441	4,135	699	669	34	597	618	17	44	1,553	2,951	3,184	85.8	77.0	489	273	—235	132
Elgin, Joliet & Eastern	Aug.	236	3,898	....	4,713	4,459	399	144	43	904	574	116	30	1,662	3,159	2,417	67.0	54.2	1,554	652	345	793
	8 mos.	236	31,402	....	37,992	29,407	2,543	2,704	235	7,565	5,180	920	271	13,454	25,095	20,466	66.1	69.6	12,897	6,337	3,239	1,734
Erie	Aug.	2,237	13,988	620	15,925	15,406	2,688	2,377	521	2,167	2,115	496	352	6,160	12,042	11,636	75.6	75.5	3,884	1,574	1,479	1,553
	8 mos.	2,237	108,412	4,835	122,615	113,218	16,677	15,985	2,165	17,374	18,018	3,950	2,840	48,205	90,513	88,938	73.8	78.5	32,102	13,505	13,150	10,429
Florida East Coast	Aug.	571	1,382	381	1,911	1,867	367	334	56	492	452	78	71	814	1,901	1,813	99.5	97.1	10	Cr. 150	85	236
	8 mos.	571	16,639	5,052	23,537	24,170	2,993	2,905	371	4,222	3,958	623	599	8,433	17,703	17,680	75.2	73.1	5,834	1,436	2,980	3,483
Georgia Railroad	Aug.	321	737	41	844	830	118	106	9	137	123	31	33	320	642	634	76.0	76.4	202	36	199	172
	8 mos.	321	5,707	227	6,447	6,477	964	922	67	1,092	1,024	246	275	2,615	5,234	5,193	81.2	80.2	1,213	299	1,151	1,130
Georgia & Florida	Aug.	360	359	....	363	387	116	86	4	39	44	6	20	105	296	278	81.4	71.7	68	19	13	53
	8 mos.	360	2,723	....	2,758	2,534	848	713	28	306	291	45	160	796	2,235	2,033	81.0	80.2	523	152	125	146
Grand Trunk Western	Aug.	952	4,616	277	5,243	4,576	794	758	50	825	839	89	75	2,249	4,146	3,864	79.1	84.5	1,097	311	310	—7
	8 mos.	952	38,160	1,752	42,886	36,532	5,968	5,974	412	6,938	6,619	713	620	18,132	33,170	31,268	77.3	85.6	9,716	2,450	4,437	635
Can. Natl. Lines in New Engl.	Aug.	172	141	18	193	200	77	79	10	41	112	....	3	154	296	333	153.6	166.5	—103	24	—187	—195
	8 mos.	172	1,488	64	1,832	1,801	577	572	76	326	516	1	23	1,134	2,220	2,390	121.2	132.7	—388	193	—1,004	—1,117
Great Northern	Aug.	8,303	21,971	1,133	25,106	26,997	4,276	3,835	301	3,574	3,711	728	385	7,592	16,682	16,613	66.4	61.5	8,424	4,391	3,297	4,144
	8 mos.	8,303	150,307	8,641	171,870	158,911	32,643	29,852	2,479	30,422	29,514	5,644	3,212	56,248	129,271	125,330	75.2	78.9	42,599	22,651	16,163	12,080
Green Bay & Western	Aug.	224	407	....	416	234	104	62	4	42	39	8	21	95	277	218	66.6	92.9	139	66	41	—10
	8 mos.	224	3,005	....	3,059	2,390	672	575	30	323	309	62	168	725	2,013	1,854	64.5	77.6	1,046	524	345	110
Gulf, Mobile & Ohio	Aug.	2,766	6,839	445	7,785	7,789	1,227	1,155	73	1,466	1,324	262	269	2,243	5,556	5,294	71.4	68.0	2,229	1,014	870	1,010
	8 mos.	2,766	55,209	3,135	62,451	60,022	9,481	9,645	560	11,270	10,575	2,079	2,110	17,856	43,578	42,399	69.8	70.6	18,873	8,633	7,498	6,795
Illinois Central	Aug.	6,538	22,624	2,189	27,372	25,337	3,837	3,840	352	4,091	4,421	700	513	8,607	18,078	18,357	66.0	72.5	9,294	5,247	3,707	2,722
	8 mos.	6,538	167,667	15,685	203,918	195,548	30,880	31,065	2,981	32,801	32,563	5,437	4,060	70,719	146,831	146,864	72.0	75.1	57,087	31,532	21,717	17,687
Illinois Terminal	Aug.	355	974	65	1,163	1,192	169	150	21	196	174	41	44	415	880	865	75.6	72.6	283	107	114	109
	8 mos.	380	7,084	528	8,462	8,288	1,299	1,221	201	1,462	1,278	323	344	3,158	6,753	6,654	79.8	80.3	1,708	716	766	587
Kansas City Southern	Aug.	891	3,540	144	4,037	3,850	587	402	48	650	507	85	86	1,170	2,615	2,248	64.8	58.4	1,422	446	736	667
	8 mos.	891	28,672	1,146	32,613	30,787	4,074	3,378	293	4,210	3,783	724	709	9,395	19,418	17,737	59.5	57.6	13,196	5,466	5,709	5,216
Kansas, Oklahoma & Gulf	Aug.	327	545	1	551	643	118	105	6	78	43	11	26	119	365	315	66.3	49.1	186	87	66	119
	8 mos.	327	4,609	4	4,654	4,775	753	807	42	356	315	91	216	988	2,512	2,549	54.0	53.4	2,142	1,040	833	790
Lake Superior & Ishpeming	Aug.	156	616	....	765	717	63	56	12	56	49	16	2	132	265	254	34.6	35.4	500	281	231	236
	8 mos.	156	2,750	....	3,380	2,249	475	407	95	469	449	116	16	758	1,818	1,597	53.8	71.0	1,562	846	822	274
Lehigh & Hudson River	Aug.	96	297	....	298	281	41	42	2	27	30	8	13	87	179	179	59.9	63.8	119	51	45	38
	8 mos.	96	2,292	....	2,297	2,125	332	351	18	235	237	68	109	683	1,453	1,443	63.3	67.9	844	347	306	267
Lehigh & New England	Aug.	180	800	....	806	781	87	88	6	138	127	38	13	210	481	457	59.7	58.5	325	218	202	189
	8 mos.	180	5,208	....	5,256	5,530	695	599	50	1,041	1,023	303	103	1,614	3,753	3,497	71.4	63.2	1,503	1,008	1,039	1,229
Lehigh Valley	Aug.	1,164	5,855	305	6,598	6,620	929	739	121	1,125	856	208	137	2,452	4,898	4,429	74.2	66.9	1,700	583	963	1,099
	8 mos.	1,177	46,094	2,463	51,346	50,581	6,766	6,378	782	8,697	8,468	1,655	1,127	19,699	38,306	37,817	74.6	74.8	13,041	4,845	7,097	6,983
Long Island	Aug.	365	1,090	3,476	4,849	4,614	621	607	86	924	781	121	14	2,203	3,918	3,738	80.8	81.0	930	378	269	148
	8 mos.	365	9,738	25,661	37,357	34,997	5,180	4,891	682	7,164	6,287	971	117	18,016	31,806	31,256	85.1	89.3	5,552	3,138	274	—2,048

(Table continued on next left hand page)

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REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Louisiana & Arkansas	Aug.	756	2,459	55	2,625	2,245	429	382	19	306	295	90	72	628	1,512	1,393	57.6	62.0	1,113	472	587	419
	8 mos.	756	19,023	464	20,292	17,484	3,140	2,863	164	2,289	2,119	694	602	4,988	11,644	10,771	57.4	61.6	8,647	3,827	4,270	3,094
Louisville & Nashville	Aug.	4,737	17,277	1,280	19,750	18,121	2,860	2,478	217	3,768	4,025	788	318	6,404	13,984	14,081	70.8	77.7	5,766	3,715	3,209	2,011
	8 mos.	4,737	139,271	8,938	158,119	147,581	21,999	21,629	1,753	30,863	32,365	6,128	2,767	52,197	113,089	115,498	71.5	78.3	45,030	25,925	23,256	15,956
Maine Central	Aug.	945	1,719	159	2,045	2,076	442	456	43	326	349	72	20	738	1,612	1,687	78.8	81.3	433	232	206	201
	8 mos.	945	14,972	996	17,325	18,173	3,696	3,492	413	2,830	3,043	576	170	5,971	13,343	13,705	77.0	75.4	3,982	1,854	1,708	1,826
Midland Valley	Aug.	334	264	....	267	180	55	42	11	18	15	4	5	62	149	127	55.6	70.4	119	53	47	31
	8 mos.	334	1,676	....	1,698	1,370	370	397	60	125	161	29	41	474	1,072	1,150	63.2	83.9	626	279	215	30
Minneapolis & St. Louis	Aug.	1,397	1,804	15	1,914	2,013	348	349	23	276	269	71	122	592	1,458	1,464	76.2	72.7	456	224	154	235
	8 mos.	1,397	13,799	60	14,404	14,362	2,671	2,537	240	2,130	2,261	606	994	4,666	11,367	11,344	78.9	79.0	3,036	1,683	1,206	1,125
Minn., St. Paul & Sault Ste. Marie	Aug.	3,223	3,888	168	4,294	4,803	809	842	62	730	590	98	80	1,440	3,207	3,155	74.7	65.7	1,087	208	818	906
	8 mos.	3,223	24,048	750	26,466	27,401	6,116	5,757	399	5,424	5,418	786	622	10,358	23,599	23,607	89.2	86.2	2,867	1,826	897	1,266
Mississippi Central	Aug.	148	219	....	222	223	58	41	4	26	24	6	14	53	161	149	72.2	66.8	62	25	24	26
	8 mos.	148	1,835	....	1,862	1,774	436	353	19	255	211	33	110	481	1,365	1,260	73.3	71.0	497	203	197	175
Missouri Illinois	Aug.	172	484	....	464	449	76	79	4	74	70	22	10	120	291	286	62.8	63.8	172	93	81	73
	8 mos.	172	3,962	1	3,967	3,442	613	592	31	604	573	166	77	962	2,331	2,253	58.8	65.5	1,636	979	716	569
Missouri-Kansas-Texas Lines	Aug.	3,242	6,049	285	7,119	7,018	1,174	1,002	103	1,096	1,073	236	249	2,487	5,299	5,077	74.4	72.3	1,820	714	801	892
	8 mos.	3,242	50,635	2,253	58,544	55,550	8,745	7,881	829	8,879	8,076	1,840	2,044	19,755	41,919	40,141	71.6	72.3	16,624	7,091	6,740	6,330
Missouri Pacific	Aug.	6,935	16,492	1,110	19,083	20,273	3,757	3,648	269	4,099	3,850	758	446	7,261	16,245	15,744	85.1	77.7	2,838	711	1,607	2,301
	8 mos.	6,935	138,956	7,803	160,945	160,341	29,951	26,811	2,234	31,882	30,516	5,929	3,742	58,021	128,870	124,583	80.1	77.7	32,075	10,479	17,043	17,960
International-Great Northern	Aug.	1,104	2,662	187	3,054	2,997	611	599	36	594	533	116	62	1,239	2,644	2,510	86.6	83.8	410	33	304	293
	8 mos.	1,104	22,706	1,325	25,974	24,877	5,612	5,222	309	4,611	4,507	890	484	9,713	21,482	21,017	82.7	84.5	4,492	940	2,681	1,916
Gulf Coast Lines	Aug.	1,723	2,984	113	3,310	3,465	769	787	38	537	549	111	97	1,183	2,733	2,747	82.5	79.2	576	67	337	392
	8 mos.	1,723	27,174	764	29,772	29,394	6,736	5,991	330	4,342	4,396	864	726	9,442	22,463	21,792	75.4	74.1	7,310	2,148	3,652	3,528
Monongahela	Aug.	178	738	....	741	645	92	92	11	66	77	12	1	214	380	381	51.3	59.1	361	85	112	161
	8 mos.	178	4,978	....	5,003	5,304	1,002	715	390	563	644	77	8	1,819	3,466	3,397	69.3	64.0	1,537	311	112	448
Montour	Aug.	51	263	....	264	191	36	31	3	78	61	20	1	74	199	173	75.5	90.2	65	60	58	36
	8 mos.	51	1,736	....	1,743	1,434	254	174	21	618	581	153	8	557	1,517	1,462	87.1	102.0	225	395	366	290
Nashville, Chatt. & St. Louis	Aug.	1,032	2,903	165	3,376	3,400	567	576	44	428	434	136	117	1,138	2,357	2,366	69.8	69.6	1,020	515	535	536
	8 mos.	1,032	23,096	1,214	26,946	26,735	4,161	4,603	400	3,923	3,818	1,054	945	9,112	19,154	19,437	71.1	72.7	7,792	3,865	3,948	3,644
New York Central	Aug.	10,716	51,346	9,787	69,591	65,499	9,644	9,953	962	13,539	12,907	2,349	1,121	28,692	56,232	54,762	80.8	83.6	13,359	6,021	5,679	4,765
	8 mos.	10,716	410,067	78,188	554,782	516,560	76,040	71,416	7,557	111,656	108,702	18,766	8,817	233,310	456,837	447,116	82.3	86.6	97,946	45,630	41,114	20,500
Pittsburgh & Lake Erie	Aug.	221	4,000	67	4,232	4,363	573	443	41	1,046	936	277	70	1,345	3,259	3,040	77.0	69.7	973	870	1,329	1,268
	8 mos.	221	32,028	564	34,399	28,015	4,277	3,538	373	8,507	8,335	2,198	595	11,186	26,438	24,616	76.9	87.9	7,961	5,941	9,405	5,772
New York, Chicago & St. Louis	Aug.	2,185	14,064	162	14,881	14,482	1,645	1,719	147	2,236	2,083	314	308	5,051	9,679	9,203	65.0	63.6	5,201	2,555	2,162	2,297
	8 mos.	2,184	107,324	1,307	112,584	102,228	13,376	12,851	1,222	17,598	16,611	2,558	2,515	38,584	75,746	71,722	67.3	70.2	36,839	18,423	15,162	13,218
New York, New Haven & Hartford	Aug.	1,771	8,095	4,593	14,141	13,288	2,098	1,950	322	1,993	2,117	394	177	6,033	11,037	10,783	78.0	81.2	3,104	1,217	869	693
	8 mos.	1,782	64,048	34,081	109,841	106,191	17,681	16,127	2,257	16,074	16,884	3,074	1,500	46,420	87,861	85,784	80.0	80.8	21,980	8,782	6,209	5,616
New York Connecting	Aug.	21	311	....	333	284	117	116	25	21	22	....	....	82	223	220	66.8	77.5	111	77	33	10
	8 mos.	21	2,601	....	2,811	2,618	700	714	200	209	217	....	....	736	1,669	1,622	59.4	61.9	1,143	603	526	447
New York, Ontario & Western	Aug.	541	635	12	666	609	161	138	18	87	80	23	24	294	596	555	89.4	91.1	71	38	—69	—57
	8 mos.	541	4,667	39	4,841	4,585	1,033	964	144	707	659	181	195	2,140	4,317	4,179	89.2	91.2	523	291	—360	—384
New York, Susquehanna & Western	Aug.	120	413	38	481	439	59	60	6	58	54	12	7	208	359	353	74.6	80.4	122	47	40	14
	8 mos.	120	3,353	320	3,870	3,582	457	457	43	480	472	94	65	1,651	2,871	2,813	74.2	78.5	1,000	287	354	232
Norfolk & Western	Aug.	2,135	16,486	493	17,612	16,694	2,450	2,389	300	3,216	3,143	644	332	4,912	11,540	11,092	65.5	66.4	6,072	4,125	3,381	2,792
	8 mos.	2,135	116,670	3,382	125,317	129,706	18,565	18,667	2,304	26,975	28,831	5,039	2,417	38,222	91,299	93,504	72.9	72.1	34,017	24,060	17,183	17,391
Norfolk Southern	Aug.	620	905	....	914	929	193	185	15	117	112	26	46	253	666	731	72.9	78.7	248	104	96	78
	8 mos.	620	7,180	....	7,286	7,706	1,616	1,574	105	963	946	214	387	2,152	5,652	5,917	77.6	76.8	1,634	810	527	617
Northern Pacific	Aug.	6,880	14,090	728	16,032	16,595	2,930	3,037	282	3,001	2,807	432	334	5,968	12,977	12,867	80.9	77.5	3,056	1,740	1,186	1,581
	8 mos.	6,880	104,192	5,340	118,607	112,021	21,327	20,313	2,137	22,614	22,733	3,358	2,786	45,408	97,979	95,047	82.6	84.9	20,629	13,175	9,586	7,226
Northwestern Pacific	Aug.	331	1,171	5	1,240	1,325	273	257	24	148	92	4	6	381	830	849	66.9	64.1	410	156	106	120
	8 mos.	331	8,511	26	8,922	8,814	2,464	2,084	183	893	838	33	44	3,120	6,700	6,452	75.1	73.2	2,223	631	487	389
Oklahoma City-Ada-Atoka	Aug.	132	88	....	88	98	22	21	3	2	3	....	2	21	50	51	57.2	51.7	38	14	10	15
	8 mos.	132	719	....	724	774	173	186	19	11	35	....	15	163	391	451	54.0	58.2	333	118	120	94
Pennsylvania	Aug.	10,083	71,188	11,616	91,989	87,717	12,311	8,800	1,377	20,490	17,047	2,877	1,305	36,756	74,230	66,277	80.7	75.6	17,759	8,059	7,267	10,134
	8 mos.	10,086	539,206	96,424	704,814	659,983	93,438	83,985	11,187	115,236	144,611	23,061	10,567	288,979	576,503	557,801	81.8	84.5	128,310	56,008	57,123	47,057
Pennsylvania-Reading Seashore Lines	Aug.	364	663	402	1,110	1,071	218	203	24	117	112	22	13	629	1,019	1,064	91.8	99.3	91	140	—208	—273
	8 mos.	364	5,026	1,538	6,791	6,690	1,735	1,692	193	831	786	148	88	4,459	7,413	7,481	109.2	111.8	—622	916	—2,613	—2,755

(Table continued on second left hand page)

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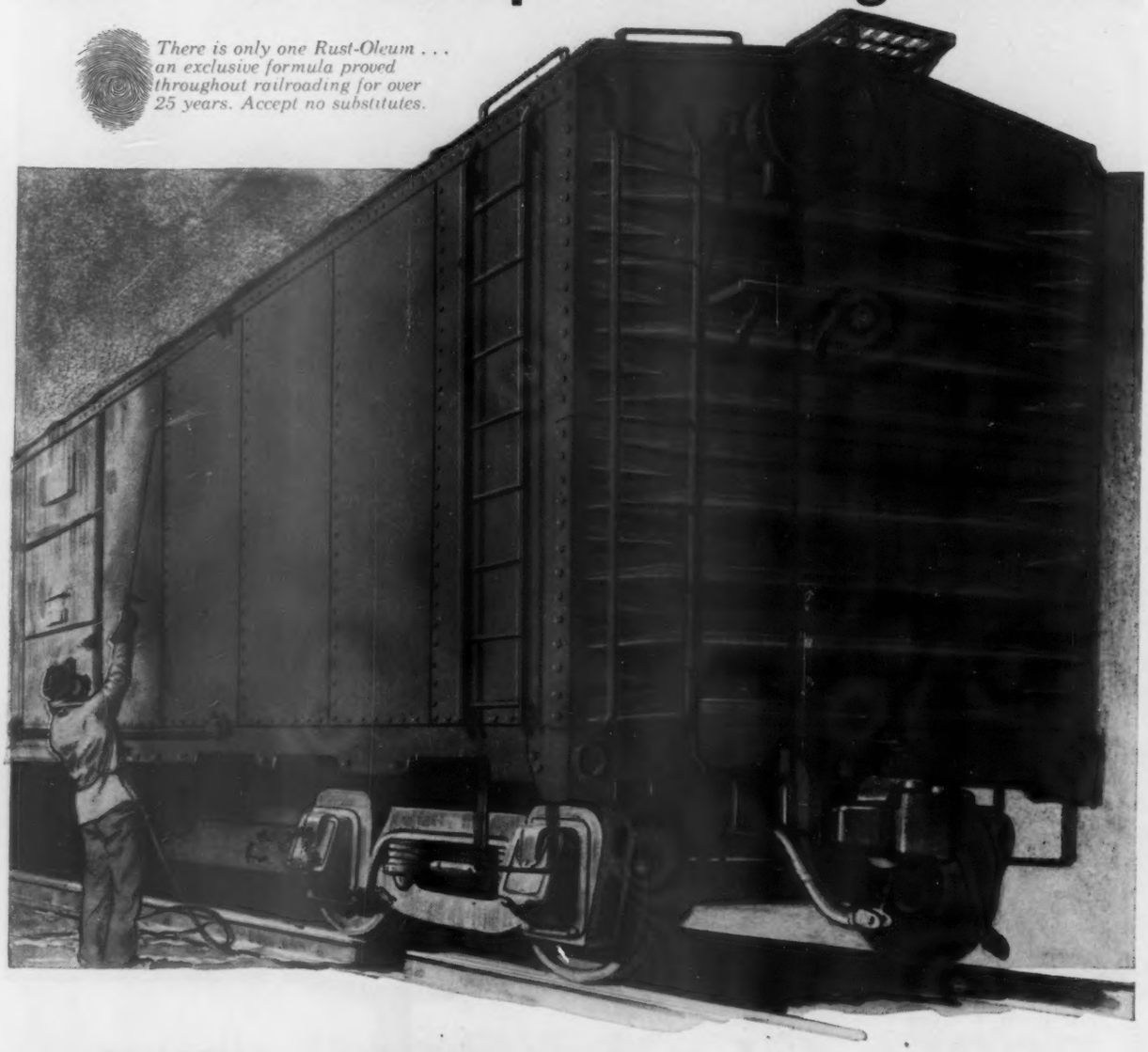

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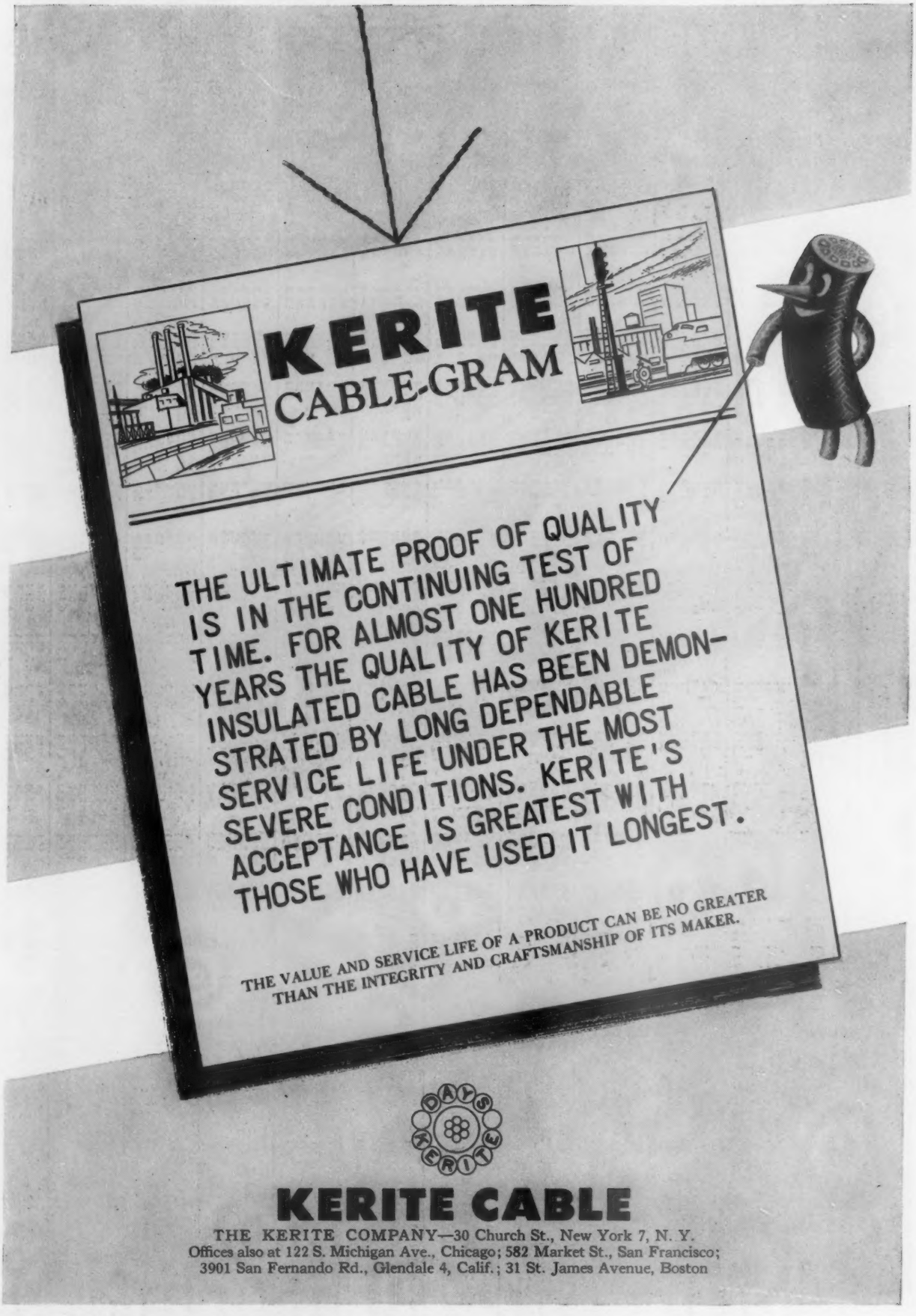
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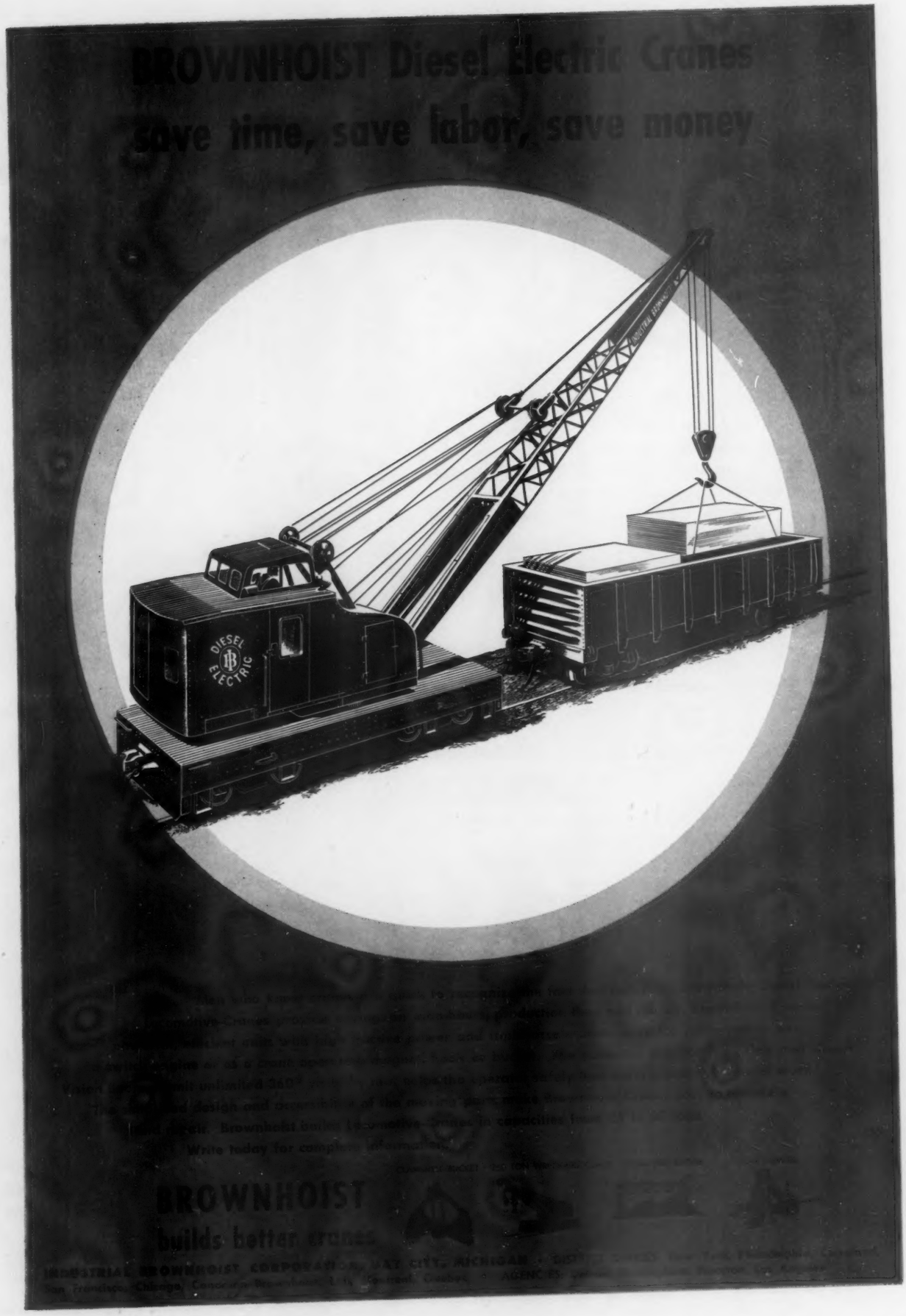
REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Pittsburg & Shawmut	Aug.	97	212	....	213	200	66	41	4	45	47	9	5	54	179	150	84.2	74.7	34	5	63	70
	8 mos.	97	1,597	....	1,602	1,443	389	265	30	397	420	69	29	415	1,307	1,185	81.6	82.1	295	42	494	426
Pittsburgh & West Virginia	Aug.	132	814	....	819	851	144	147	24	179	169	36	55	197	611	588	74.6	69.1	208	103	132	146
	8 mos.	132	6,235	....	6,280	5,423	1,076	890	188	1,443	1,358	284	457	1,471	4,721	4,318	75.2	79.6	1,559	743	1,001	792
Reading	Aug.	1,310	10,275	545	11,409	11,021	1,761	1,805	205	2,277	2,184	431	144	3,987	8,559	8,463	75.0	76.8	2,850	1,399	1,572	1,484
	8 mos.	1,310	79,399	4,660	89,289	84,299	13,429	12,544	1,817	18,055	16,862	3,436	1,217	32,764	68,701	66,673	76.9	79.1	20,589	9,579	11,387	9,370
Richmond, Fredericksburg & Potomac	Aug.	118	1,389	572	2,209	2,217	252	369	24	294	308	66	24	704	1,404	1,486	63.5	67.0	806	430	290	240
	8 mos.	118	11,839	4,704	19,011	19,665	3,061	2,746	198	2,371	2,426	456	195	5,826	12,645	12,246	66.5	62.3	6,365	3,069	2,271	2,414
Rutland	Aug.	336	385	1	427	467	72	78	9	57	70	14	21	174	347	426	81.3	91.2	80	25	51	—5
	8 mos.	365	2,727	105	3,272	3,713	598	649	77	510	648	111	176	1,551	3,055	3,496	93.4	94.2	217	209	—167	—148
Sacramento Northern	Aug.	265	256	....	261	277	59	56	3	16	14	4	2	70	156	178	59.9	64.2	105	17	68	60
	8 mos.	265	3,349	....	3,403	1,715	464	513	—17	177	118	32	18	671	1,408	1,415	41.4	82.5	1,995	722	1,093	27
St. Louis-San Francisco	Aug.	4,601	9,557	546	10,921	10,823	1,651	1,619	141	1,675	1,729	486	348	3,903	8,083	7,899	74.0	73.0	2,838	1,558	1,417	1,548
	8 mos.	4,601	75,555	4,069	86,138	81,963	13,273	13,389	1,342	14,106	13,878	3,797	2,681	30,768	65,008	63,676	75.5	77.7	21,131	10,710	9,668	9,424
St. Louis, San Francisco & Texas	Aug.	159	467	11	490	486	58	45	4	36	38	1	24	151	279	279	57.0	57.4	210	110	62	42
	8 mos.	159	3,508	55	3,736	3,708	491	398	34	310	297	9	202	1,285	2,374	2,190	63.5	59.1	1,362	627	377	468
St. Louis Southwestern Lines	Aug.	1,567	5,407	30	5,631	5,626	1,031	735	57	736	641	105	160	1,639	3,755	3,370	66.7	59.9	1,876	782	825	1,151
	8 mos.	1,567	48,424	194	50,236	47,577	8,225	5,916	546	5,515	5,132	830	1,349	13,340	29,863	27,195	59.4	57.2	20,373	10,812	7,356	7,912
Seaboard Air Line	Aug.	4,079	9,497	1,078	11,509	11,813	1,628	1,545	197	2,068	2,183	523	358	3,753	8,297	8,438	72.1	71.4	3,213	1,381	1,885	1,771
	8 mos.	4,080	89,876	10,151	108,321	109,544	16,921	16,294	1,526	18,815	19,196	4,107	2,993	33,970	77,085	78,047	71.2	71.3	31,237	13,086	16,464	15,282
Southern	Aug.	6,299	18,649	1,844	22,240	23,014	3,286	2,791	430	4,330	3,640	798	421	7,170	16,171	15,113	72.7	65.7	6,069	2,968	2,858	3,282
	8 mos.	6,299	158,754	12,321	184,288	176,850	24,292	23,457	2,118	32,351	33,030	6,035	3,423	56,409	123,928	126,538	67.3	71.6	60,361	29,817	27,516	20,893
Alabama Great Southern	Aug.	326	1,450	101	1,660	1,632	259	226	53	337	333	72	34	489	1,187	1,137	71.5	69.7	472	170	281	169
	8 mos.	326	11,978	672	13,554	12,814	1,934	1,902	225	2,787	3,011	573	276	3,967	9,495	9,840	70.1	76.8	4,059	1,803	1,981	998
Cinn., New Orleans & Texas Pacific	Aug.	337	3,363	234	3,794	3,731	463	482	44	787	823	175	71	956	2,414	2,494	63.6	66.8	1,380	915	605	558
	8 mos.	337	29,254	1,535	32,415	29,674	3,530	3,676	270	6,545	6,850	1,403	589	7,794	19,511	20,028	60.2	67.5	12,904	7,529	5,881	4,086
Georgia Southern & Florida	Aug.	397	636	71	765	754	176	161	7	89	62	7	7	266	587	457	76.8	60.6	178	Cr. 8	10	86
	8 mos.	397	5,545	640	6,729	6,147	1,322	1,294	78	603	554	55	64	1,952	4,158	3,931	61.8	64.0	2,571	669	543	557
New Orleans & Northeastern	Aug.	203	1,036	62	1,156	994	184	181	29	135	122	25	19	220	606	593	52.4	59.7	550	279	232	124
	8 mos.	203	8,425	424	9,321	7,833	1,312	1,235	134	995	1,008	200	157	1,813	4,646	4,621	49.8	59.0	4,676	2,602	1,661	1,003
Southern Pacific	Aug.	8,113	39,490	3,785	46,704	47,125	5,475	5,169	487	9,881	9,623	1,786	819	18,358	36,730	36,178	78.6	76.8	9,974	4,269	4,059	4,023
	8 mos.	8,113	320,082	2,861	371,607	360,493	44,365	42,057	3,462	75,764	73,040	13,735	6,886	139,527	282,959	273,617	76.1	75.9	88,647	44,023	32,628	35,942
Texas & New Orleans	Aug.	4,290	10,344	692	11,776	11,664	2,033	1,707	135	1,667	1,583	89	263	4,278	8,818	8,593	74.9	73.7	2,957	1,283	690	855
	8 mos.	4,290	87,820	5,088	98,951	96,662	16,853	14,882	1,050	13,137	13,881	687	2,204	33,508	70,396	69,692	71.1	72.1	28,555	12,535	8,372	8,232
Spokane International	Aug.	152	330	1	346	302	69	68	2	28	23	10	6	79	193	180	55.9	59.4	152	56	72	60
	8 mos.	152	2,203	7	2,311	1,907	487	497	18	185	171	66	43	543	1,348	1,324	58.3	69.4	964	343	467	322
Spokane, Portland & Seattle	Aug.	944	2,682	114	2,917	3,077	403	465	52	282	334	97	28	834	1,652	1,735	56.6	56.4	1,265	470	661	809
	8 mos.	944	19,610	724	21,454	20,383	3,043	3,330	334	2,830	2,632	766	237	6,456	13,312	13,159	62.0	64.6	8,142	2,980	4,280	3,932
Tennessee Central	Aug.	286	382	2	407	439	73	81	5	64	57	22	12	135	306	310	75.3	70.7	101	25	43	64
	8 mos.	286	3,185	31	3,413	3,375	736	780	43	543	526	168	95	1,135	2,697	2,700	79.0	80.0	716	207	231	216
Texas & Northern	Aug.	8	133	....	138	106	6	5	....	6	9	2	1	9	29	46	20.8	42.9	109	51	28	17
	8 mos.	8	965	....	1,031	858	40	44	1	60	71	19	8	88	239	352	23.2	41.0	792	392	234	155
Texas & Pacific	Aug.	1,834	6,157	437	7,064	6,635	1,051	894	117	1,156	1,305	241	185	2,193	4,913	4,951	69.6	74.6	2,151	765	948	954
	8 mos.	1,834	51,331	2,942	58,541	53,990	8,316	7,690	890	9,330	9,204	1,936	1,538	18,023	39,959	38,166	68.3	70.7	18,581	7,003	8,325	7,267
Texas Mexican	Aug.	161	250	....	264	258	46	62	5	28	38	8	9	63	166	187	63.0	72.2	100	51	27	15
	8 mos.	161	2,172	....	2,300	2,338	442	555	50	259	263	66	72	513	1,455	1,523	63.2	65.1	845	385	270	280
Toledo, Peoria & Western	Aug.	239	630	....	648	516	122	112	6	51	29	10	48	137	395	344	61.0	66.6	253	125	65	46
	8 mos.	239	5,089	....	5,189	4,420	907	784	50	383	375	79	393	1,073	3,048	2,802	58.7	63.4	2,141	1,051	679	537
Union Pacific	Aug.	9,824	40,091	3,725	47,651	47,336	6,837	6,238	667	8,632	7,911	1,262	921	17,399	36,117	33,727	75.8	71.3	11,533	6,255	2,234	3,589
	8 mos.	9,824	293,617	25,291	345,476	323,864	49,745	50,128	4,672	66,273	60,320	9,815	7,825	123,525	265,366	253,082	76.8	78.1	80,110	49,480	16,695	13,926
Utah	Aug.	110	156	....	156	105	21	21	2	47	39	9	1	42	117	113	75.2	107.6	39	10	31	4
	8 mos.	110	791	....	793	919	152	176	15	335	380	73	6	281	839	1,079	105.8	117.4	—46	79	—34	—148
Virginian	Aug.	611	3,304	2	3,398	3,175	420	444	56	784	784	191	43	898	2,229	2,146	65.6	67.6	1,169	787	722	580
	8 mos.	611	24,592	14	25,331	30,086	3,463	3,919	465	5,853	7,067	1,429	367	6,353	16,779	19,143	66.2	63.6	8,552	5,553	4,810	5,539
Wabash	Aug.	2,393	9,088	464	10,305	9,148	1,277	1,340	115	1,364	1,249	379	291	4,419	7,752	7,093	75.2	77.5	2,553	893	980	818
	8 mos.	2,393	70,645	3,459	80,097	73,675	10,285	9,990	903	10,410	10,219	2,925	2,391	32,821	58,958	55,929	73.6	75.9	21,140	8,183	8,597	6,945
Ann Arbor	Aug.	294	886	....	934	325	98	71	7	135	96	30	28	346	630	303	67.5	93.4	304	140	138	33
	8 mos.	294	6,212	....	6,356	5,102	816	848	63	979	921	239	222	2,483	4,672	4,270	73.5	83.7	1,684	758	753	413
Western Maryland	Aug.	831	4,329	6	4,585	3,835	627	393	63	733	657	203	97	1,159	2,816	2,593	61.4	67.6	1,768	950	1,092	798
	8 mos.	831	32,238	54	34,034	30,408	4,332	3,568	385	5,702	6,491	1,501	730	9,702	21,938	22,076	64.5	72.6	12,096	6,513	7,167	5,150
Western Pacific	Aug.	1,193	4,940	264	5,335	5,122	758	913	69	680	644	149	191	1,467	3,329	3,652	62.4	71.3	2,006	968	851	507
	8 mos.	1,193	36,842	2,240	40,028	34,351	6,762	5,998	720	5,372	5,204	1,084	1,531	11,319	26,998	25,273	67.4	73.6	13,030	6,400	5,485	3,700
Wisconsin Central	Aug.	1,046	2,587	68	2,833	2,894	438	385	37	474	365	69	72	1,047	2,124	2,015	75.0	69.6	709	236	292	587
	8 mos.	1,046	20,223	381	21,889	20,018	3,195	3,032	292	3,563	3,507	543	559	8,351	16,489	16,425	75.3	82.0	5,400	1,818	2,240	1,287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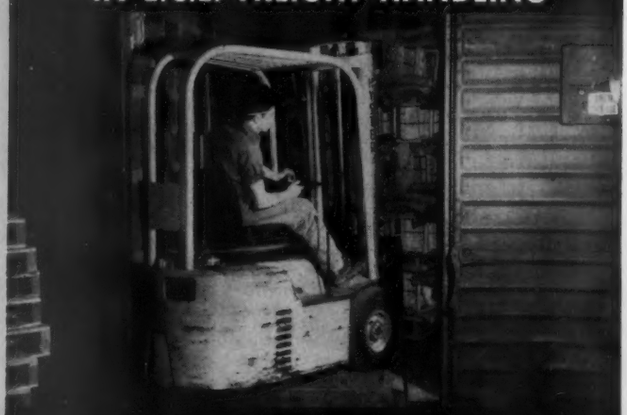
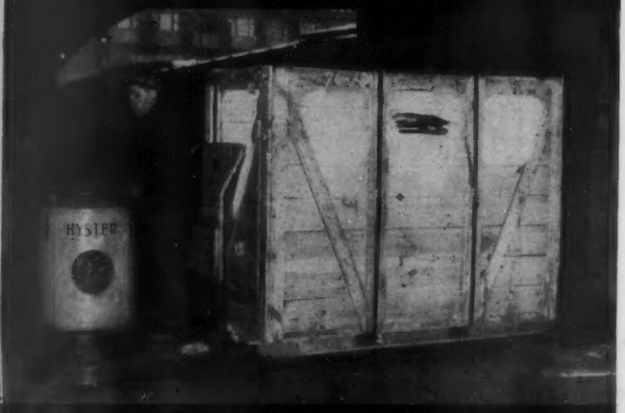


This Hyster 2000 lb. Lift Truck deposits a pallet load of furniture inside boxcar without further handling.



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Versatile Hyster 4000 lb. YC-40 Lift Truck works easily and quickly inside boxcars.

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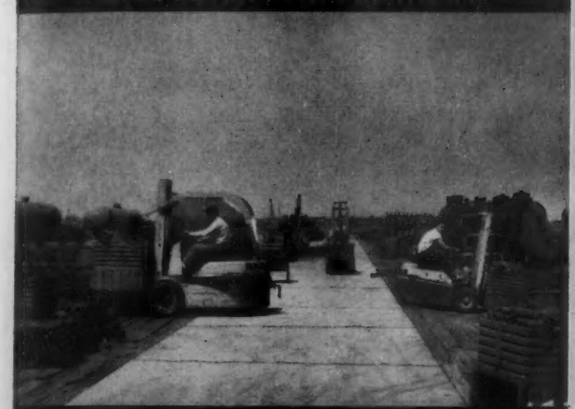
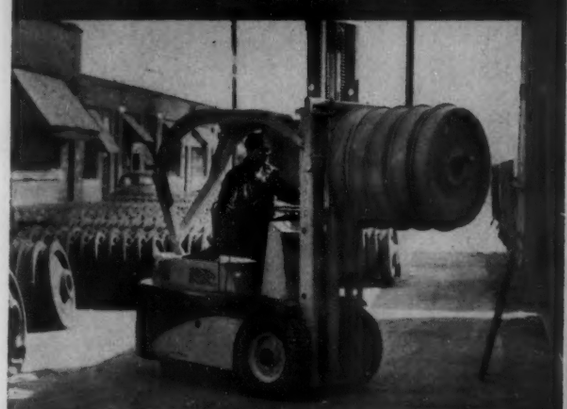
IN STORES DEPARTMENT



These 2000 lb. and 4000 lb. Hyster Lift Trucks make possible *efficient* use of outdoor areas for storage.



Here's one of the easiest ways to handle loose car wheels—and at lowest cost...as proved many times.

Hyster Karry Krane can quickly select any set of mounted wheels in storage and deliver them to the job.

IN MECHANICAL DEPARTMENT

Hyster XA-60 Lift Truck transports mounted wheels to job, and deposits wheels directly on track.

Pulling sides of ore car into line demonstrates one of the many money-saving uses of the Hyster Karry Krane.

This Hyster YT-40 with boom attachment is invaluable for delivering and handling heavy repair parts on the job.

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BALDWIN DIESEL CYLINDER LINERS are typical of the "fine gem" quality of all Baldwin renewal parts. Porous chrome plating contributes to the remarkably long life of these liners. Users report longer wear, in some cases up to four times that of unplated liners.

You can always rely on Baldwin's seven conveniently located warehouses to supply diesel replacement parts that will insure finer performance and longer, trouble-free service.

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Careful craftsmanship and the finest machine tools account for the unmatched quality of Baldwin parts. This honing operation gives Baldwin cylinder liners a smooth, long-wearing finish.

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Shell Talona R Oil 40

can reduce cylinder maintenance up to ONE THIRD on railway diesels

THROUGHOUT THE RAILROAD industry Shell Talona R Oil 40 is setting a new standard of anti-wear performance never before achieved or thought possible.

A recent survey on railroads shows that costs for cylinder liner replacement is reduced considerably when Shell Talona R Oil 40 is used. The average saving was more than one third.

Manufactured from premium base oil plus compatible additives, Shell Talona R Oil 40 offers railroad operators these outstanding advantages:

1. **Superior anti-wear protection**
2. **Excellent detergent-dispersant action**
3. **Outstanding oxidation stability**
4. **Maximum engine performance**

In all types of railroad diesels Shell Talona R Oil 40 is the answer to reduced maintenance costs. See the Shell Railroad Service Engineer for additional details.

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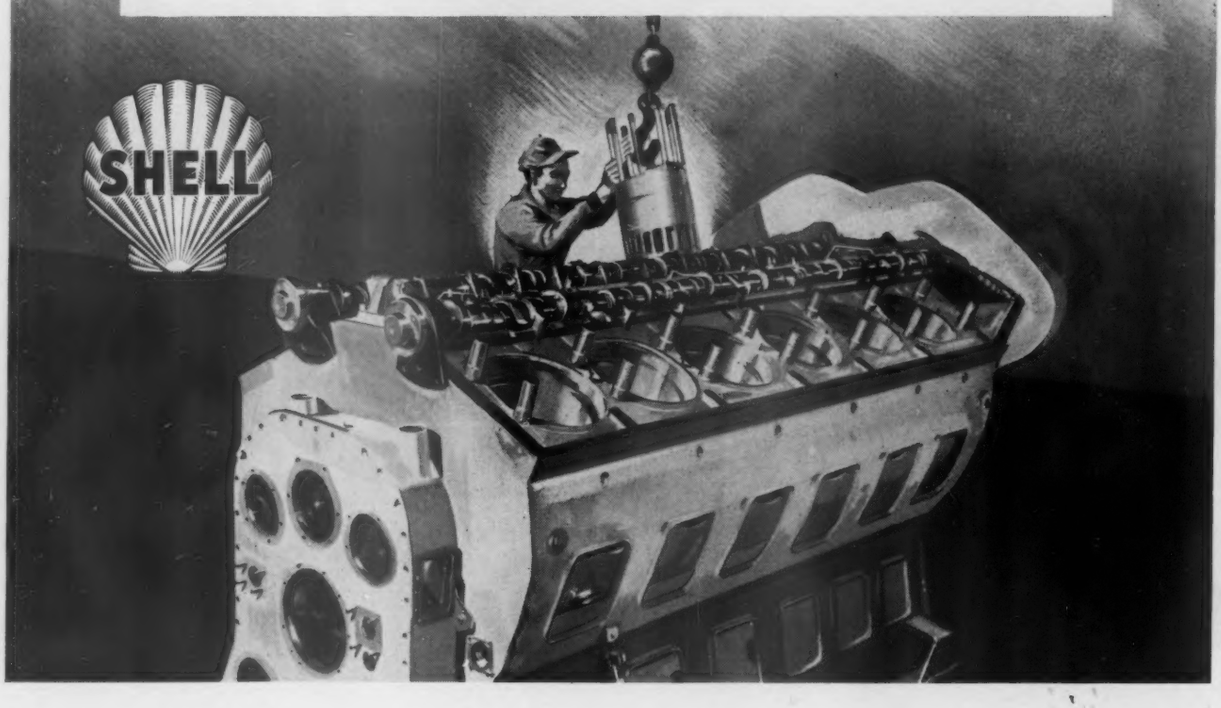

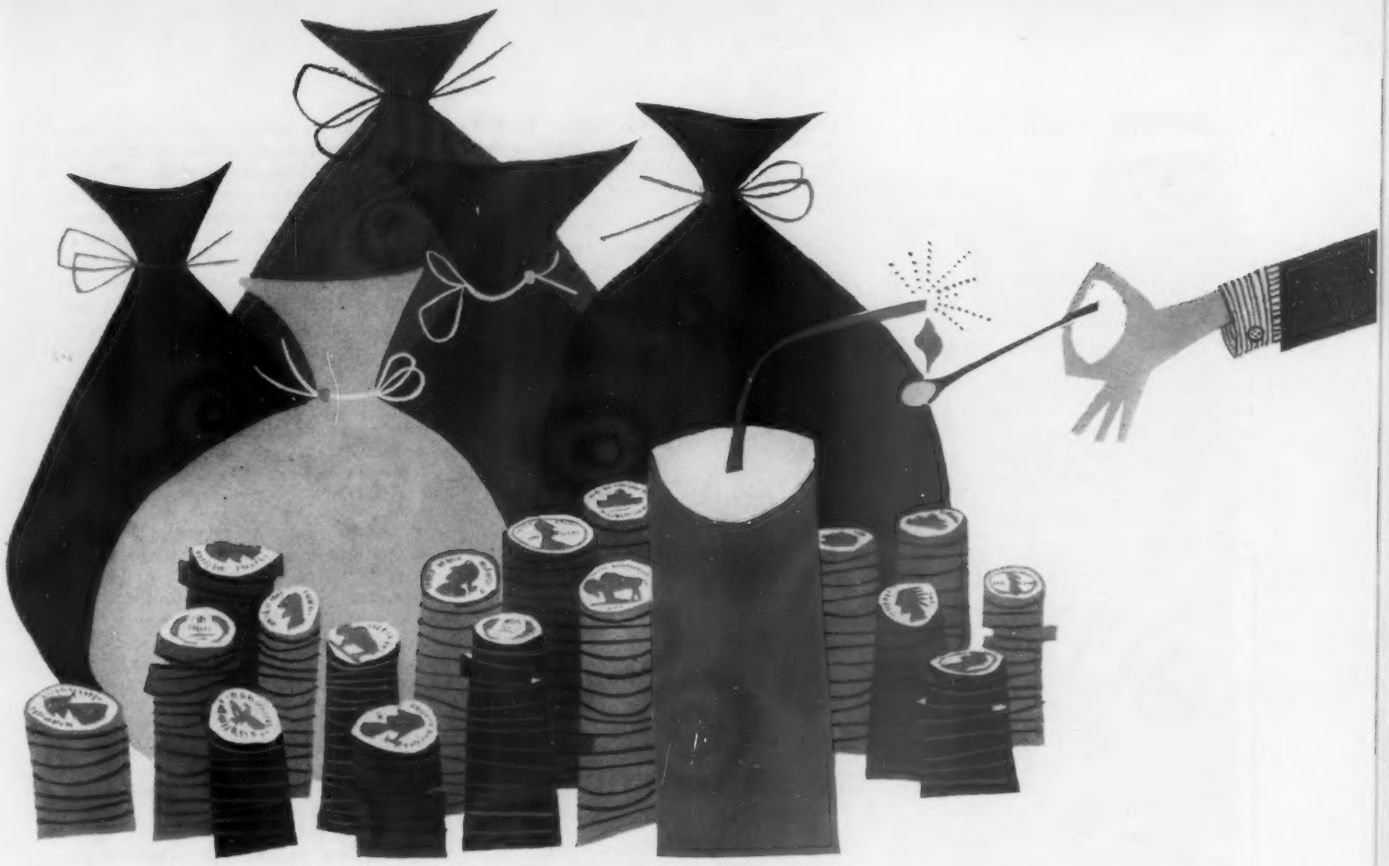

HE SAVED THREE CENTS ON A GASKET, BUT IT BLEW $325

As a rule, you'll find you can't beat Electro-Motive's prices on replacement parts. But occasionally you'll be offered substitute parts at shaved prices—a few pennies under ours.

Take the case of one railroad that bought head gaskets for 3¢ less than Electro-Motive's price. The gaskets blew after four days' service. Total loss—duplicated work and lost locomotive time—came to $325.

When you buy your General Motors locomotive parts from Electro-Motive, you get parts that are rigidly inspected, expertly packaged and protected against rust and corrosion. You also get a warranty of 100,000 miles or one year's service, whichever occurs first.

Why take a chance on substitutes? *Low price doesn't mean low cost.* The pennies you "save" can cost you dollars. In this case they cost $325.

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- **Continuing Improvements**—Over a 15-year period, an 800% increase in piston life, for example.
- **Strategically Located Warehouses**—Cut railroad shipping costs, reduce inventory requirements.
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La Grange, Illinois—Home of the Diesel Locomotive • In Canada: GENERAL MOTORS DIESEL, LTD., London, Ontario

Current Publications

PAMPHLETS

ACCIDENT FACTS, 1953 Edition. 96 pages. National Safety Council, 425 N. Michigan ave., Chicago 11. Single copies 75¢; quantity prices on application.

Occupational accidents in 1952 cost American industry $45 per worker; 15,000 persons were killed and 2,000,000 injured while at work during 1952. As a result, total time lost hit 250,000,000 man-days. About one-fifth of the current edition of this statistical annual is devoted to occupational accidents. There is also a list of accident rates by major industry groups.

FACTS AND FIGURES ABOUT BRITISH RAILWAYS, 1953 Edition. 37 pages. British Railways, The Railway Executive, 222 Marylebone rd., London, N.W.1, England. Free. Supply limited.

Contains financial data, operating results, and statistics on traffic, equipment, employees, etc., for 1952 and prior years, as well as many interesting facts about British railways.

•

THE STORY OF OHIO'S RAILROADS. 24 pages, illustrations, maps. Special Transportation Committee (of Ohio Railroads), Room 1014, 16 E. Broad st., Columbus 15, Ohio. Free.

A short history of Ohio and the growth of its land transportation from 1669 to the coming of the railroads; of the railroad industry, and the effect it has had on Ohio's general development. The booklet was prepared in connection with the eight-day observance of Ohio's sesquicentennial late this summer. Some 37,000 copies were distributed at a track exhibit of old and new rolling stock at the state fair.

•

MERIDEN, WATERBURY & CONNECTICUT RIVER RAILROAD, by Glover A. Snow. 42 pages, illustrations. Transportation, Volume 7, August 1953. Connecticut Valley Chapter, National Railway Historical Society, Inc. Available from Roger Borrup, Warehouse Point, Conn. $1.10.

This is the history of the Meriden, Waterbury & Connecticut River, now a part of the New Haven. It includes a roster of equipment and rolling stock notes, and concludes with a section on the New Haven's use of Budd RDC cars, and its expanded passenger service operations.

•

DIESEL LOCOMOTIVES. 20 pages, illustrations. Times Weekly Review, Printing House sq., London, E.C.4, England. One shilling.

A booklet of photographs, with authoritative notes, showing British diesel locomotives, rail cars and the first gas-turbine locomotive to run on British Railways. The photographs are from the Times Weekly Review.

•

TABULATION OF STATISTICS PERTAINING TO SIGNALS, INTERLOCKING, AUTOMATIC TRAIN CONTROL, TELEGRAPH AND TELEPHONE FOR TRANSMISSION OF TRAIN ORDERS, SPRING SWITCHES, AND TRAIN COMMUNICATION SYSTEMS AS USED ON THE RAILROADS OF THE UNITED STATES, JANUARY 1, 1953. 36 pages. Bureau of Safety, Interstate Commerce Commission, Washington 25, D.C.

Contains statistics for individual railroads on the above-mentioned subjects.

BOOKS

GEOGRAPHICAL FEATURES OF THE AUTOMATION OF INDUSTRY, by David G. Osborn. 106 pages, illustrations, maps. Department of Geography, University of Chicago, Chicago 37. $3.

This is the first geographic study of automation, which is defined as "automatic operation, processing, and handling of materials and information; it can include automatic direction of the activities of human beings. It involves automatic control of processes; in manufacturing it extends to automatic handling of materials and parts into and out of machines as well as in them; it is not necessarily workerless." This study is exploratory in nature. It considers the impact of technology upon the distribution of industry and it focuses on process changes which have significant effects upon uses of land and utilization of human effort. After outlining the nature of automation, the author discusses examples of it in man-

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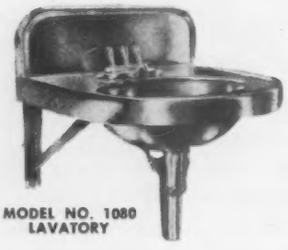

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Graybar distributes every type and size of lamp required for railroad lighting — including signal lamps. Made by General Electric, you can be sure of high quality and maximum service-life. Local stocks, maintained near important railroad centers, mean prompt deliveries.

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ufacturing and non-manufacturing industries. Case histories cited under transportation are the Riverlake Belt Conveyor, centralized traffic control on the Burlington, and Kirk yard, an industrial classification yard on the Elgin, Joliet & Eastern (see page 78).

•

HERE COMES THE SCHOOL TRAIN!, by William H. Bunce. 63 pages, illustrations. E.P. Dutton & Co., 300 Fourth ave., New York 10. $2.

Jimmie and Betty Webster live in Ketagama, deep in the Canadian bush, and go to school for one week in each school month aboard a "school car." After receiving home work for the next several weeks from the teacher, the car moves on, returning four weeks later for another week. Mr. Bunce recounts experiences of the two children and their friends during a school year. Material for the story was obtained first hand, observing school cars in operation in northern Ontario.

•

GUIDE TO WASHINGTON, D.C., VIRGINIA, MARYLAND, by Andrew Hepburn. 112 pages, illustrations, maps. Travel Enterprises, Inc., 257 Fourth ave., New York 10. $2.

This is the fifth guide to be issued in the American Travel Series. It contains information on what to see, where to go, how to get there, where to stay, where to eat, what to do, and how much to pay. Included are 25 detailed maps and 64 fine photographs. Previous guides have covered California, New England, New York City and Florida. Each volume is complete for the region presented, giving everything needed for full understanding of the area and the practical, economical use of its facilities. Twenty additional titles in the series are planned.

•

VICTORY RODE THE RAILS; THE STRATEGIC PLACE OF THE RAILROADS IN THE CIVIL WAR, by George E. Turner. 419 pages, illustrations, maps. Bobbs-Merrill Company, 468 Fourth ave., New York 16. $4.50.

This is the story of the part played by railroads in the Civil War; the story of their first great military test and how they met it. In his preface the author says:

"There is little evidence that at the outbreak of the Civil War either North or South had given serious consideration to railroads as a factor in the impending struggle. General interest in rail transportation as a possible element of importance in military affairs first was aroused by its service in army mobilization. However, it was not until the common confidence in quick success had been dispelled that both sides began to realize they were confronted by an entirely new problem in logistics. The recent devolopment of railroads had changed the entire aspect of the war as originally contemplated. Soon after the first great battle failed to end the struggle, it began to appear that important railroad junction points were to become major military objectives, and, as time passed, many of the blood-

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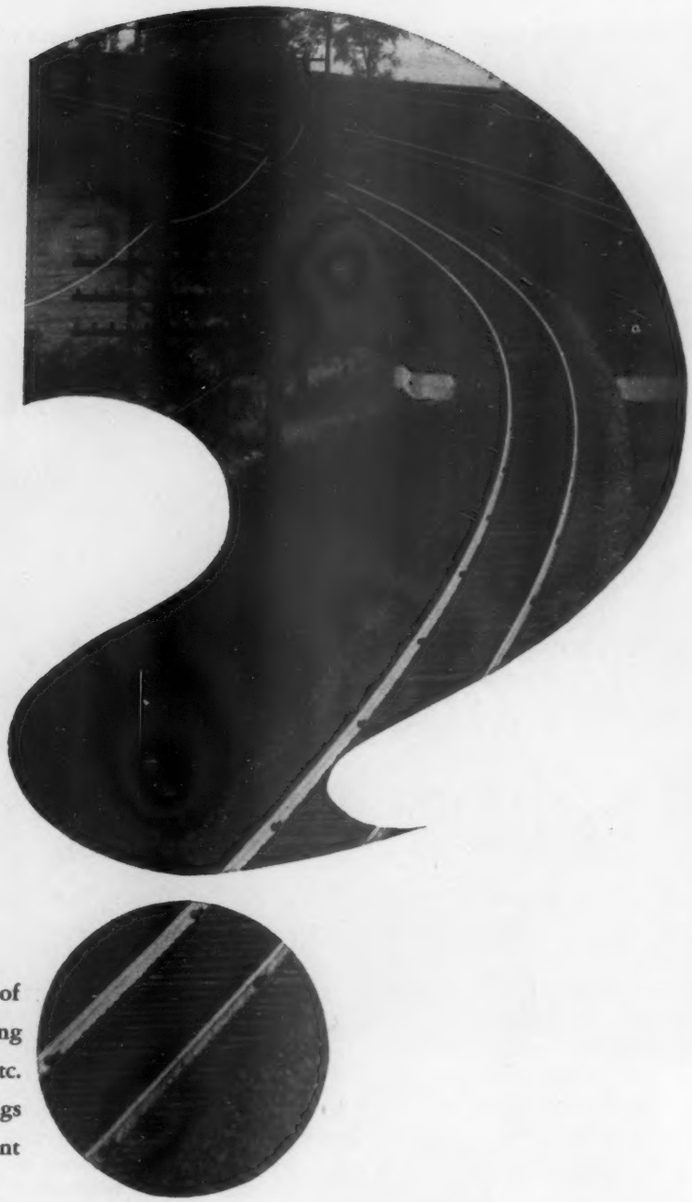

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iest battles of the war were fought in defense of them. Now famous campaigns were planned and conducted for the primary purpose of capturing or destroying railroad lines of particular value to the enemy. As each successive year ended, it became increasingly apparent that the side which controlled the railroads held a tremendous advantage, and in the end it was the Confederate loss of two railroads which led to the surrender at Appomattox."

Chapters carry such interesting titles as: The railroads draw the boundaries; first Bull Run; Stonewall Jackson knows how to use a railroad; the North finds an engineering genius (Herman Haupt, at one time chief engineer of the Pennsylvania, and a man who could put up bridges made, as President Lincoln said, "of beanpoles and cornstalks," and build them as a Confederate said, "faster than the Rebs can burn them down"); the rails in the Antietam campaign and after; Forrest finds Grant's Achille's heel; and, the roads in Lee's defense of Richmond. The book is well documented, and contains some very interesting photographs and several maps, including end-paper maps showing railroads of the Civil War period.

•

THE THEORY AND PRACTICE OF REINFORCED CONCRETE, by Clarence W. Dunham. Third Edition, 499 pages, illustrations, drawings. McGraw-Hill Book Company, 330 West 42nd st., New York 36. $7.

This new edition, covering materials and fundamental principles, is for undergraduate engineering courses and those who wish to obtain information about concrete construction in general. It has been largely rewritten and greatly amplified because of extensive developments in reinforced concrete during the past 10 years. New material includes recent developments in concrete technology, principles of planning precast concrete, a chapter on forms, and a number of practical design problems that enable the reader to apply knowledge to the whole structure instead of to isolated members. The book conforms to the 1951 building code of the American Concrete Institute, and to the new system of numbering bar sizes. Illustrative material has been amplified, while more illustrative problems have been worked out in detail, and practice problems increased.

RECORD

900 MILES AND OTHER R.R. SONGS, sung by Cisco Houston, with guitar. One 10-in. 33⅓ r.p.m. longplaying record. Folkways Records & Service Corp., 117 W. 46th st., New York 36. $4.45.

Songs on this record are 900 miles; gettin' up holler; the roamer; wreck of the 97; hobo bill; the great American bum; the brave engineer; the gambler; the rambler; railroad bill; and worried man blues. A pamphlet which accompanies the record supplies the words to the songs and some introductory text on railroad songs in general.

TRADE PUBLICATIONS

NICKEL ALLOYS IN RAILROAD EQUIPMENT. 32 pages, illustrations. International Nickel Company, 67 Wall st., New York 5. Free.

This 1953 revision of Bulletin A-36 points out the current practice of adopting better materials and indicates where nickel alloy steels and other alloys containing nickel are widely used. Forged, rolled and cast forms for motive power, rolling stock and track work are covered. Included are composition and properties of alloys that lower ultimate operating costs, raise factors of safety, increase horsepower and improve reliability.

•

LANTERNS. 8 pages, illustrations. Catalog No. 52, Star Headlight & Lantern Co., West Main st., Honeoye Falls, N. Y.

Illustrates and describes the Star electric lantern line, including models 202-R (dual purpose), 178-180 (car inspectors'), 204-2B (twin-bulb safety), and 215-F (flashing safety).

•

HUNDREDS OF USES FOR OZALID, THE MOST VERSATILE COPYING PROCESS. 48 pages, illustrations. Ozalid division, General Aniline & Film Corp., Johnson City, N.Y.

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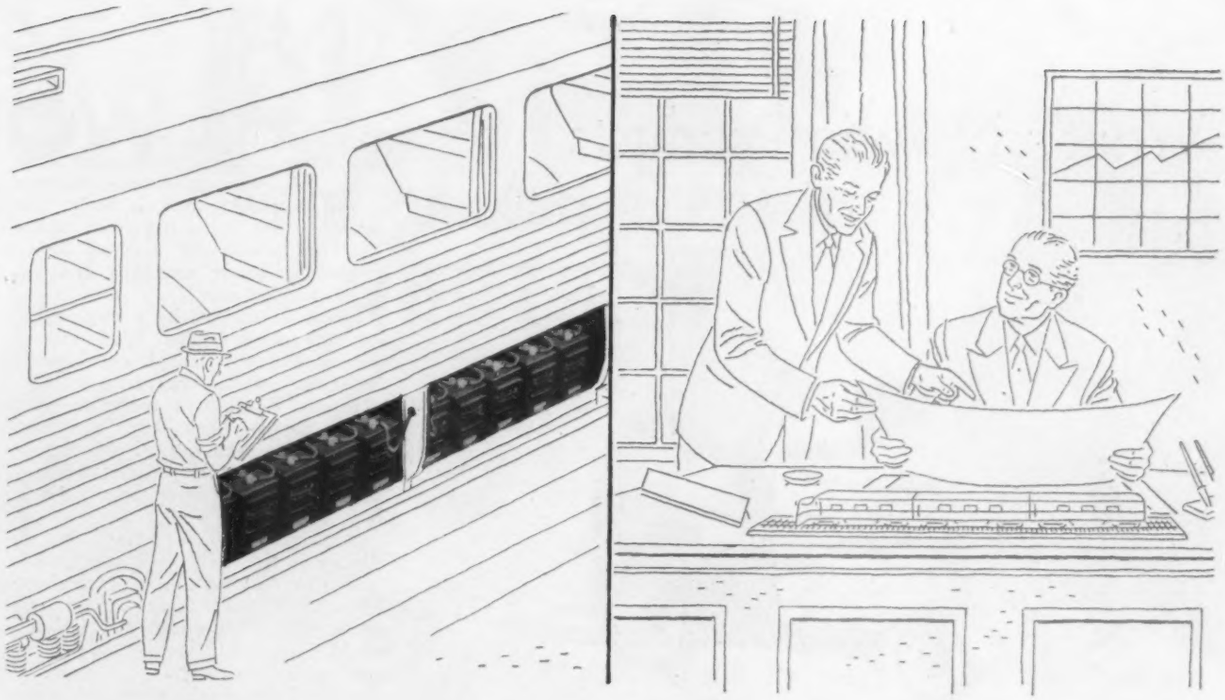

More evidence that EDISON batteries

COST LESS PER YEAR

on passenger-train cars

Longer Life: A recent analysis of all EDISON car-lighting batteries replaced by one railroad during a period of 12 months showed that the batteries had given an average of 26.18 years of service.

A similar analysis of all EDISON batteries replaced by another railroad during a period of 12 months—from both air-conditioned and non-air-conditioned cars—showed an average of 18.04 years of service.

Lower Maintenance: We have recently totaled the amount billed by us for cell repairs, tools, paint and electrolyte during a 12-month period to the same group of railroads. The amounts were found to range from $2.46 per battery per year to $6.99 per battery per year.

More than 2000 sets of EDISON batteries are in operation by the railroads in this group—a sufficiently large number of batteries that their long life and low cost are likely to be representative and may fairly be presented as trustworthy evidence of economy.

More than Economy is designed into EDISON batteries. They give superior road performance; can safely be maintained in a high state of charge; have no prescribed discharge limits; seldom need yard charging; can effect savings of as much as 1500 to 2000 pounds per car. Write for Bulletin SB 3802 and name of your nearest Edison field engineer. Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey.

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Lowest Over-all Cost
. . . you get both with an EDISON

EDISON
Nickel · Iron · Alkaline
STORAGE BATTERIES

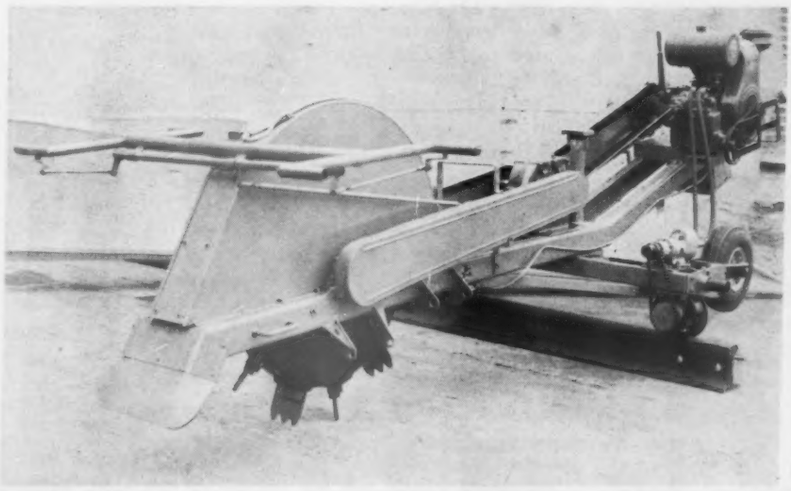
What's New in Products

Buda Fork Trucks

The development of a new 7,500-lb. capacity gasoline or diesel powered fork truck has been announced by the Buda Company, Harvey, Ill.

The new trucks are available with 72, 84, 108 and 114-inch lift, with a rated capacity of 7,500 lb. at a 24-in. load center from the face of the forks. Quick accessibility of all working parts is attained by a "wide open" design in which all side, rear and top panels can be easily removed. The truck features a 12-in. diameter industrial type quick-change clutch, a single-lever full range gear shift, center point automotive-type steering, full front vision instrument panel, hydraulic brakes, rolled-steel mast, and a self-alining cylinder. Cushioned or solid rubber tires are available.

The overall length of the unit (less forks) is 100½ in. with a wheel base of 60 in., and a width of 42 in. The unit is designed to turn in a 77¼ in. intersecting aisle •



Crib Reducer

A machine has been developed by Fairmont Railway Motors, Inc., Fairmont, Minn., for use with rail gangs in digging out those parts of the tie cribs that might foul the bits of power adzes. Designated the W89 Series A Crib Reducer, the new machine consists of a balanced frame, mounted on double-flanged wheels, at one end of which is a digging drum, shielded for safety purposes, and at the other end a power plant.

The digging drum turns on self-alining ball bearings and has renewable teeth of abrasion-resistant alloy steel. The maximum outside diameter of the drum with teeth is 41 in. The shield for the drum is pivoted within limits to permit the machine to be worked at grade crossings and adjacent to platforms.

Power is supplied by a single-cylinder, air-cooled engine fitted with a power take-off, manual clutch, and hydraulic coupling. The drive includes a double V-belt to a reduction gear, and a double V-belt from the reduction gear to each side of the digging drum. An adjustable counterweight is provided to keep the machine in near balance.

The unit is propelled along the rail from crib to crib by hydraulic power, and the speed of the forward travel can be varied by a simple adjustment. Two pneumatic set-off wheels and self-storing lift pipes aid in removing or re-railing the unit. When necessary to deadhead the machine on both rails, one of the set-off wheels is moved to the digging side of the machine and located so as to ride the rail. A lifting post is also provided for handling by a rail crane. The machine can be worked in either direction •

Automatic Water Purification System

An arrangement to assure pure drinking water without unpleasant chlorine taste by automatic chlorination and subsequent filtering has just been introduced by the Tested Appliance Company, Chicago 8. This device, the Everclor, is applicable to coaches, sleepers and diners. It feeds automatically a measured amount of chlorine solution

(Continued on page 57)

A.A.R. APPROVED

HOW PLYPAK WASTE CONTAINER & RETAINER REDUCES HOT-BOXES

1 PLYPAK fits snugly in the journal-box as shown above. Then the waste is packed in the PLY-PAK according to instructions in the A.A.R. Lubrication Manual. The back-roll method is used where the railroad's instructions require it. Box fitted with PLY-PAK requires 40% less waste than does a standard packed box.

2 The PLYPAK is a complete waste retainer and container. The combs are under the journal and prevent displacement of the waste. The points in the bottom hold the waste in position lengthwise and prevent it from coming out under the collar.

3 Waste automatically extrudes through the slots in the bottom of the PAK, as illustrated, forming a wick to draw oil from the box. This wick filters the oil leaving dirt in the bottom of the box.

4 Resilient, ridged sections on bottom side of PLYPAK permit oil to flow freely in journal box and also serve to hold the waste against the journal under all conditions of impact and track variations. Design develops a pumping action, keeping waste in action and eliminating glazing.

Inquiries invited

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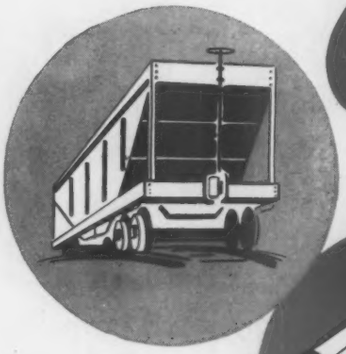
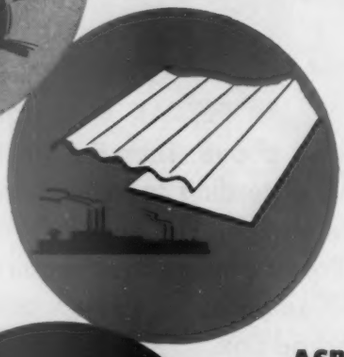


ASPHALT CAR CEMENT

—for protecting underframes and car end walls against rust, corrosion and abrasion. Effectively seals out dust and moisture. Can be applied by spray or brush.



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—made in big handy sheets, flat or corrugated. Will not rot, rust, corrode, burn or warp. Resists weather, rodents, termites. Needs no preservative treatment.

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Asbestos Shingles and Sidings
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Asphalt Bridge Plank
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Cold Storage and Refrigerator Car Insulation
Expansion Joints for Concrete and Masonry Structures
Fireproofing Materials
Fire-Chex Shingles
Locomotive Lagging (85% Magnesia)
Locomotive Packing
Mastic Flooring (Asphalt)
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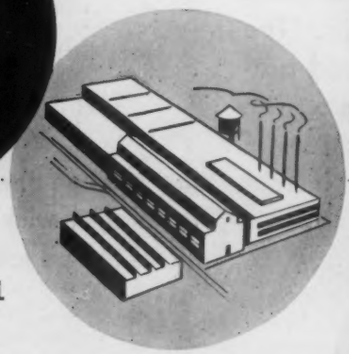
Pipe and Boiler Covering (85% Magnesia)
Freight Car Roofs
Smoke Jacks
Tank Car Insulation

ASBESTO-SORB

—thirsty fibers of asbestos that soak up oil, water, grease, chemicals. Use in diesel shops to help maintain safety underfoot. Approved by Underwriters' Laboratories, Inc.



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—for every railroad requirement. 5 to 20 year bonded roofs; roof maintenance paints and coatings, asbestos felts for highest fire resistance. Free Roof Check service by expert Carey roofing engineers.

ASK YOUR CAREY INDUSTRIAL SALES ENGINEER *to show you how Carey products can help you maintain rolling stock and equipment, more efficiently, more economically. Call him in today — or mail coupon for information on specific products.*

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Be Prepared With COMMONWEALTH
PILOT SNOW PLOWS

COMMONWEALTH One-Piece Pilot Snow Plows applied to diesel road locomotives have proved of great value in keeping rails clear of drifting snow without the costly repeated use of large snow plow equipment.

These rugged cast steel pilot plows can be easily applied, removed and reapplied. Also, as a permanent application, they help solve year round operating problems by serving as strong deflecting pilots which clear the way of objects, substantially reducing the possibility of accidents or derailments. They may be used without interference with normal coupling operations.

Act now to reduce your next winter's operating costs with COMMONWEALTH One-Piece Cast Steel Pilot Snow Plows.

Large numbers of **COMMONWEALTH** *pilot snow plows of special design have also been applied to Diesel switchers and road switchers.*

Commonwealth Pilot Snow Plow applied to Road Locomotive

Commonwealth Cast Steel Pilot Snow Plow

GENERAL STEEL CASTINGS

GRANITE CITY, ILL. **EDDYSTONE, PA.**

detect train breakaway, pipe leakage, rear-end brake applications.

● Now you can prevent costly train operating delays with the Westinghouse Air Brake Company Brake Pipe Flow Indicator.

This money-saving device does more than measure brake pipe pressure, it measures the *volume* of air flowing from feed valve to brake pipe. Take, for example, a rear-end pressure drop that would not be immediately noticeable on the pressure gage. The Brake Pipe Flow Indicator instantly senses the increased flow of air and warns the engineman.

It works the other way around, too. The engineman knows when the train is fully charged and ready to go, thus eliminating pull-aparts due to unreleased rear-end brakes. When adjusting feed valve to higher pressure preparatory to descending grades, the engineman can easily tell when he has reached the new pressure. The flow indicator also shows whether brake pipe pressure is being properly recharged during each braking cycle.

The Westinghouse Brake Pipe Flow indicator is ruggedly built to withstand the most severe pressure fluctuations. It is available for operation on either 32 or 64 volts. Write today for our free booklet that describes this time-saving protective device.

Westinghouse Air Brake
COMPANY

AIR BRAKE DIVISION WILMERDING, PA.

(Continued from page 52)

into the pressure water storage tank each time the tank air pressure is released to permit refilling.

The Everclor and the associated filtering system operate on the principle of superchlorinating the water to eliminate impurities, then removing the chlorine by filtering to remove the unpleasant taste.

The automatic chlorinator is installed at the valve end of the water tank in the space between the tank and tank casing. The unit is piped so that it is filled with chlorine solution from the side of the car, with the fill cap near the car water filling fixture.

The system is plastic lined from the chlorine fill cap, through the Everclor, thence to the top of the car water tank, and there are no moving parts to break or get out of order. An adjustment on the measuring cup regulates the amount of chlorine dosage. The unit is armor-coated throughout to meet railroad requirements.

The Everclor is said to have sufficient chlorine capacity to last on a standard coach or sleeping car well over a month without refilling, and a diner for about two weeks •

Brushes with Tamped Shunts

The quality of graphite brushes for electric motors and generators made by Speer Carbon Company, Saint Marys, Pa., has been improved by a new method and new machine for making the connection between the brush and the brush shunt.

The type CS brush made by this company has a tamped shunt in which the tamping powder is copper which has a silver coating. Silver is stable and even if oxidized is conductive.

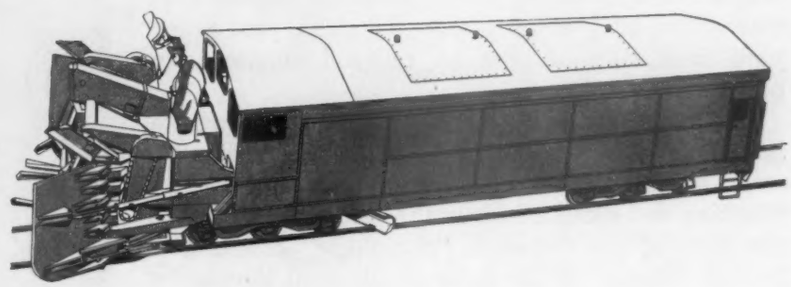
Equally important in the making of a brush is the machine used for tamping. The one shown in the illustration, used in the making of the CS brush, uses a gravity feed which controls the amount of powder that flows into the hole after each stroke of the tamping tool.

Brush holes have grooves in their sides so that the tamped powder is keyed to the brush. To deter oxidation and increase strength, the tamped connection is treated with a resin.

The shunts have high pulling strength and the increase of shunt to brush resistance does not increase appreciably after long continued vibration •

Sealer for Concrete Floors

A new sealer for newly laid or repaired concrete floors is available from the West Disinfecting Company, Long Island City, N. Y. The sealer serves as a protective coating to prevent dusting and spalling and permits residual moisture to rise out of new concrete. No etching is required and the manufacturer says only a single coat is required to protect most new floors. One gallon covers 400 to 600 sq. ft. •



Army Gets Electric Powered Rotary Snow Plow

A powerful 107-ton, electrically driven railroad rotary snow plow is now being manufactured by the Wm. Bros Boiler & Manufacturing Co., Minneapolis, for the Transportation Corps of the U.S. Army. This development is the result of an extensive investigation of railroad snow-handling facilities by engineers of the Transportation Research and Development Station (TRADS), Fort Eustis, Va. The design of this plow is being prepared through the joint efforts of engineers of TRADS and the contractor, incorporating the Bros Sno-Flyr design.

The plow is being developed to fill a need recognized by the Transportation Corps for an all-purpose snow-removal unit for possible use in military railway operations overseas. The plow will be electrically driven to take advantage of the diesel-electric locomotives used by the Army. With few exceptions, previous plow units of this general type have all been steam operated.

In design, the plow rotors (2) have a diameter of 8 ft. A single oscillating snow rake has a diameter of 66 in. Plow wings reach out on the right of way far enough to make clearance for a 66-ft. railway car negotiating a 20-deg. curve as required by USTC 2B4 diagram.

The snow plow will throw approximately 300 tons a minute, casting it to distances up to 110 ft. Trajection of snow is completely controlled by two hydraulically operated chutes, delivering snow in any direction at any chosen angle. Plowing speeds are governed by the depth of the snow.

Power is supplied to the unit by four standard traction motors, arranged in parallel series to deliver 1,600 hp. Constant speed control of these motors is accomplished by an auxiliary generator operating in the series field. Each motor is geared to a common jack shaft turning at 1600 r.p.m.

All moving parts on the plow head are power hydraulically controlled through solenoid-operated valves and hydraulic pumps operated at 2,000 p.s.i. pressure. The oscillating snow rake can be raised to 13 ft. 6 in. and lowered to 12 in. above rail head to complete this cycle in 10 sec. The plow is mounted on 6-wheel adjustable-gage trucks, designed to comply with USTC clearance and load limits of 37,000 lb. per axle.

Electric power is furnished by a trailing diesel-electric locomotive. A second diesel-electric locomotive supplies the tractive force. Complete control of both power and pusher locomotives is maintained from the snow-plow cab. Tractive force is automatically cut off when the plow load becomes excessive.

A two-way intercommunication system coordinates all operations between the plow and trailing locomotives. Heated plow cab accommodates snow-plow operator, engineer and observer. Ready access to traction motors and component parts facilitates ease of inspection and maintenance work.

A unit of similar design, but mechanically driven, was built by Bros for a major railroad several years ago. Upon completion of the new snow plow late this year, it will be delivered to a northern railroad for extensive tests, to be conducted under the supervision of TRADS and Bros engineers •

SANTA FE gears for mass production of reflectorized speed control signs

SPEED CONTROL SIGNS—both new and existing—are reflectorized in record time in this new AT&SF sign shop. In its very first year of operation, this shop has reflectorized all of the road's permanent speed control signs—80% of its temporary signs, plus many yard limit, railroad crossing, railroad junction and other signs.

Unique in the Sante Fe's reflectorization program is the fact that it makes full use of existing painted wood signs by bonding the "Scotchlite" Reflective Sheeting to a metal blank and fastening it directly to the face of the old sign. "Scotchlite" Sheeting is bonded directly to the faces of all-metal temporary speed control signs. Pre-cut letters or numbers are bonded to the sheeting with the same operation.

If you'd like to learn more about this reflectorization program, return the coupon below. No obligation of course.

ONLY TWO MEN—a painter and a helper—are needed. Tailored exclusively for the making of reflectorized signs, this Albuquerque shop virtually revolutionized the road's sign-making by replacing the three shops that made conventional painted signs.

THIS HIGH SPEED VACUUM APPLICATOR requires no special skills or long training to operate. Heat permanently bonds the sheeting to sign surface. Entire bonding operation is done by one man— takes approximately six minutes.

Minnesota Mining & Mfg. Co.
Dept. RA103 St. Paul 6, Minn.

Send me additional information on Sante Fe sign shop operation.

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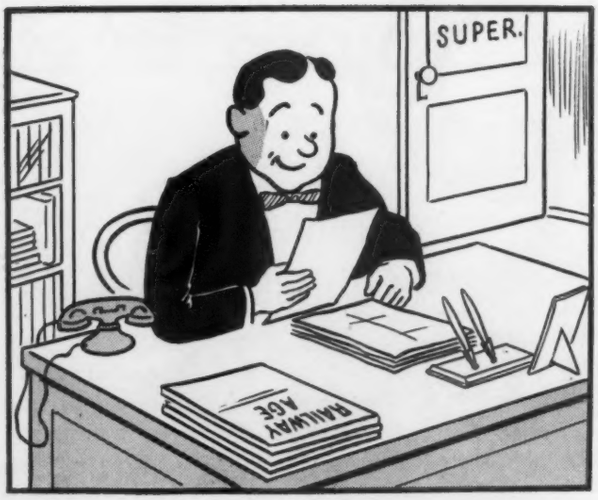
3M COMPANY



There was a rail foreman from
Pendent
Who wanted some knowledge
resplendent
He read this magazine
And it's plain to be seen
That it helped, for he's now
Superintendent

The new superintendent has proven again that *Railway Age* and progress go hand in hand.

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This week our thanks and $5 goes to Mr. D. Holmberg, of the Pullman Company in Minneapolis, for contributing his limerick. Who's next?

Benchmarks and Yardsticks

AT A RECENT MEETING of railroad officers one of the nation's leading industrialists raised a question as to whether the railroad industry is recruiting a safe ratio of available managerial talent. In such a recruiting program, he said, any company or industry ought to try to get "a reasonable share of college-trained people."

Estimating that two out of every hundred industrial employees are working for the railroads, he reckoned that the railroads ought to have about 2 per cent of the trained executive talent. Taking the statistics of the proportion of the graduates who entered railroading from four of the nation's leading schools of business administration, he found that the railroads' percentage ran from one-tenth of one per cent up to 1½ per cent. He conceded that these ratios may not be entirely representative, but he looks upon them as a danger signal.

"The railroad industry," he concluded, "is far too vital to this country, and its problems are far too difficult to build its future management out of leftovers. Only a steady supply of highly able men, intensively trained and developed, can provide the kind of leadership your industry needs for the job ahead of it."

Your reporter knows too many competent executives who never went to college—and too many relatively unimpressive college graduates—to argue that a college degree will work miracles with poor material. What the college does—besides equip the student with some useful information and training in the use of his mind—is to provide something of a screening process. There is less of a chance that an otherwise impressive fellow will fail, if he has shown his capacity to absorb a college education.

Just as important a means of assuring a competent reservoir of executive talent as college-trained management apprentices, is the college education of employees and officers who are already on the payroll. Many leading educational institutions offer high-grade schooling to such men. Several of these courses have been mentioned from time to time in our pages, notably the Advanced Management Program at Harvard Business School. That school is now offering a 16-months course for younger business leaders, which will afford them the same complete course of study as that offered to the school's regular students.

The cheapest product a company can buy is the ablest management that the market affords—and the competition for able managers is so keen that the industry or company which does not exert itself to the utmost to assure itself a future supply of such managerial material is bound to be in for a tough time in the years ahead. J. G. L.

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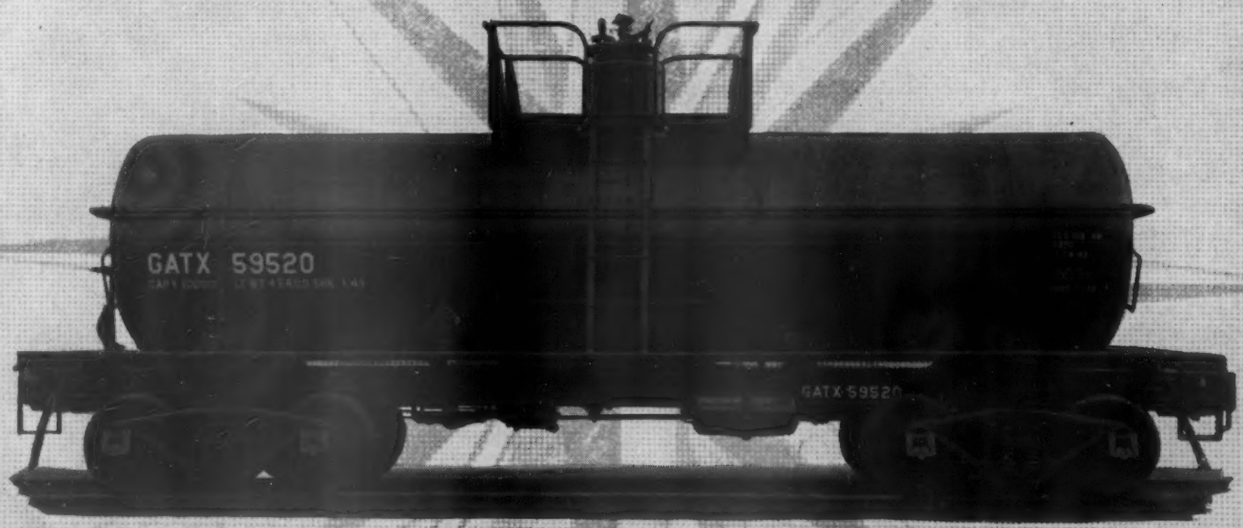
GATX
tank cars carry bulk liquids

If you're planning a new plant, have General American help determine your future bulk shipping needs. Our experience gained in designing, building and operating 46,000 GATX tank cars of hundreds of specialized types will prove valuable to you.



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Does Competition Need Regulating?

There is going the rounds a specious but entirely fallacious argument, in the attempt to justify continued severe regulation of transportation, especially rates. This argument, in substance, contends that it wasn't monopoly pricing but destructive competition which brought on transportation regulation in the first place. Now that there is more competition than ever (so the argument goes), it certainly must follow that strict regulation is even more necessary now than when regulation was first instituted.

Competition Was "Monopolistic" Once . . .

The kind of competition that prevailed when regulation was begun was the variety known in economics as "monopolistic competition"—two or more big corporations fighting each other. The end result of such "monopolistic competition"—if it is not broken up by regulation or compromise—is for one of the competitors to put all others completely out of business. There is justification for the regulation of such "monopolistic competition"—unless the competitors are permitted and can be induced to end their warfare by compromise. But the kind of competition which prevails in transportation today is not of the "monopolistic" variety. It is just plain unadorned competition without any qualifying adjectives.

In the old days of "monopolistic competition," and prior to regulation, if the A&B Railroad got to competing with the C&D Railroad, both railroads might make sudden and drastic reductions in all rates between common points—and this kind of warfare could continue until one of the competitors ran out of money, in which case the victor could buy out the vanquished and establish a complete monopoly. Once the victor had purchased the vanquished and established a complete monopoly, it could levy such rates as it saw fit.

With such "monopolistic competition" going on, it was both just and reasonable for regulation to intervene either (1) to prevent rate wars from becoming so destructive that all competition was destroyed or (2) if competition were destroyed, to prevent the remaining monopoly from levying extortionate rates.

The kind of competition which exists in transportation today is totally different—specifically in that no railroad, even with complete lack of any regulation whatever, would now have the power to destroy its competition. Let's suppose that there were no regulation and that the A&B Railroad should attempt to destroy its truck competition—by making all its rates lower than truck rates, even for hauls where rail costs were higher than truck costs. Such rates might, temporarily, injure truck operators—but they could not put truck competition out of business, the way old-time inter-railroad competition would have been able to put a competing railroad out of business. Such destruction of competition could not occur today because the A&B Railroad could not continue below-cost rates indefinitely, and the minute it restored compensatory rates, the trucks would instantly be back in business again, wherever they had the "inherent advantage." The knowledge that this would surely happen would be an effective deterrent to the management of the A&B Railroad to prevent it from instituting such a destructive rate war.

But It's Different Today

Contrast this with the era of "monopolistic competition." Back in those days, the A&B could afford to lose money in a rate war for a time, because the goal it could reasonably expect to attain was the total and final elimination of the competing railroad—which could not, like a modern truck operation, be revived and put back in business as a competitor overnight.

This paper sees no practical objection to regulatory intervention to prevent a carrier from establishing rates lower than its actual out-of-pocket costs of doing business (i.e., actual costs of a specific company for a specific movement, and not averaged or estimated or "allocated" or "full" costs). On the other hand, neither do we see the need for even this much regulation—because there is no better price policeman than competition. With practically every railroad shipper also being engaged to some degree in the transportation business, and with all the common and contract trucks and water operators available, just how many more policemen do we need?

In Canada, President Donald Gordon of the CNR recently observed:

"The regulations which surround the making of competitive rates are worthy of particular attention, because in my view the way in which business organizations react to competition is a good test of their vitality and survival power. I

am thinking of the speed with which they move, their resourcefulness in bringing new ideas to bear, the flexibility of their procedures, and all those things that are involved in adapting to a changing enviroment. But if this *is* a fair test, then the independent observer who studies [Canada's] Railway Act is not likely to be greatly impressed with the future prospects of the railway industry."

President W. A. Mather of the CPR also said recently:

"The question, I believe, is whether Canadian transportation policy in the future is to rest on principles appropriate to a freely competitive transportation economy, or whether it is to be shaped by a system of regulation which would not only largely eliminate 'consumers' choice but would also impair seriously the relative efficiency of competing means of transportation. A system of regulation by decree, designating those areas of transportation within which the railways and other modes of transportation would operate, arbitrarily allocating to certain modes of transportation particular types of traffic, and the establishment of rates which, in many instances, would bear scant relationship to the actual cost of the transportation service performed, holds little promise for the kind of progress and improvement in transportation which the expanding economy of Canada so clearly demands. Such a policy, I fear, would seriously hobble our industrial growth and be gravely detrimental to the public interest. Such total regulation would be the socialist's solution."

This paper ventures no opinion as to the legislative needs of our good neighbors to the north —but is convinced that the remarks of Messrs. Mather and Gordon certainly are fully applicable to the situation south of the international border.

While waiting for appropriate legislation to give effect to such modern thinking, what would be wrong with proposing the kind of rates that would be *fully competitive on all traffic not now moving by rail and for which the railways have the "inherent advantage"?* It might be possible to secure the approval of a good many such rates, even without changes in legislation. If not, the effort would be educational anyhow, and would turn the spotlight specifically on the outworn parts of the law. Isn't some such action needed, too, as a desirable and perhaps necessary preliminary step before a satisfactorily definitive answer is likely to be given to the pressing question of widespread "piggy-back" service?

A "Sag" in the Enterprise Facade

Some inland waterways advocates held a regional meeting in Springfield, Ill., the other day, and, in search of after-dinner entertainment, brought in a speaker from the Mississippi Valley Association. That organization, which claims membership (accurately enough, probably) of large and small business organizations all over the Midwest, came into the limelight again recently when it began plugging for improvement of the so-called Sag channel in Chicago's south side industrial district.

In its "all-out" efforts to realize this bargeman's dream, the M.V.A. has already put the bite on Congress to appropriate $100,000 just for study of the project by the ever willing and anxious Army Corps of Engineers. What the actual construction of this waterway might cost, the association neglected to reveal.

The M.V.A. is comprised of some of the industrial Midwest's leading spokesmen for "private enterprise." The Chicago committee of the M.V.A., for example, lists among its membership the chairmen of two large steel companies; the chairman of a coal company; the president of a major oil company; the president of a large mail-order house; an officer of a leading packing house; the executive vice-president of a major bank; the president of a water terminal company; a truck and farm implement manufacturer and a prominent manufacturer of power equipment. They have succeeded in whipping up much sympathy from the Chicago press—even that firmest of all "private enterprises," the Chicago Tribune.

Improvement of the Sag may be a good thing for some private business interests in the Chicago area. If so, these interests rather than the taxpayers of the entire country should foot the bill. The Burlington recently built a new railroad into Kansas City; the Rock Island built 46 miles of new line in Iowa merely to shave minutes from its schedules; the Pennsylvania literally moved mountains to improve its Pittsburgh-St. Louis line; the Union Pacific has forged new lines in the rugged hill country in Wyoming. These projects were all paid for by revenues the railroads receive from users of their facilities.

Can the private enterprising M.V.A. find a parallel?

. U. S. Army Photographs

THE ARMY TRANSPORTATION CORPS' 200,000-lb. capacity flat cars can carry two M-47 tanks weighing 94,000 lb. each. These were formerly loaded one to a flat car.

MILITARY RAILWAY SERVICE DEVELOPS . . .

Modern Military Rolling Stock

Working with equipment builders and carriers, Transportation Corps keeps its motive power and freight and passenger cars up to date

By HARRY A. JACOBS

Staff member
Office Chief of Transportation
Department of the Army

By close cooperation with the nation's carriers and the equipment manufacturing industry as well as through its own research, the Transportation Corps has been successful in maintaining a modern fleet of freight, passenger, hospital, kitchen and tank cars and locomotives. In fact the continuing effort of the Army to modernize and keep in repair its fleet of rolling stock provides the opportunity for government and industry to work together for the nation's benefit.

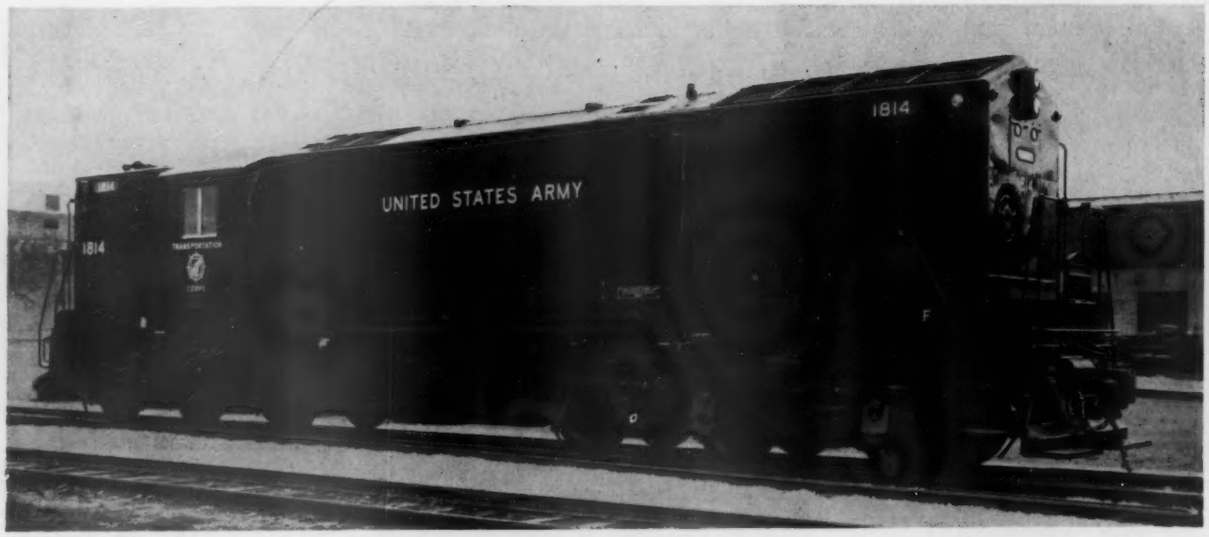
In order to appreciate the need of all this rolling stock, it is important to understand just what "Army railroading" actually means. The Army does not operate any railroads in the United States, nor does it compete with commercial railroads. Many military installations have their own utility railroads, but neither these nor the training railway at the Army Transportation Center, Fort Eustis, Va., can be considered operating roads.

The Army does, however, have its own cars which are operated for it by the commercial carriers. The largest group of these are approximately 3,700 tank cars. Others are specialized rolling stock, such as heavy-duty flat cars, troop kitchen cars and mortuary cars.

Overseas the picture is different. In combat areas the Army is in railroading as a matter of military necessity. It not only must use and operate the equipment which may be available in the theater but must suplement such equipment with its own. The Military Railway Service overseas engages in all types of railroad activities, including maintenance of way and the gamut of equipment repair and overhaul. Whenever possible it uses existing facilities and local labor in order to economize and conserve military manpower. During World War II the Army's Military Railway Service operated railroads in every theater of war. During the hostilities in Korea the 3rd Military Railway Service, which supervises the Korean National Railway, hauled over 95 per cent of the supplies and equipment required by the United Nations forces.

Primarily because of its operating responsibilities overseas, both actual and potential, the Transportation Corps has concentrated on having available equipment of modern design. To be fully prepared to meet future demands it has engaged in collaboration with private industry in developing new equipment with special military characteristics.

The Military Road-Switcher (MRS-1) is an outstanding example of new Army rail equipment which combines operating efficiency with meeting specific military needs. The MRS-1 was developed through the joint effort of the Transportation Corps' Research and Development Station, Fort Eustis, Va., and private industry. The



THE ARMY'S multiple-gage military railway switcher No. 1 (MRS-1).

Transportation Corps determined the specifications, and industry produced the locomotive.

The new switcher is a novel piece of equipment. It can be run on nearly any track except narrow gage, both as a yard or road locomotive. It is designed for operations in temperatures ranging from 40 deg. F. below to 125 deg. F. above zero. By mechanical adjustment the locomotive's wheels can be moved on the axles so that it can be operated on tracks ranging from standard American width up to the widest encountered anywhere in the world. Its draft gear is such that it can be quickly fitted with any one of the large variety of couplers in use. Power is provided by a diesel engine which is so designed that it will run on the lowest grade of fuel oil ordinarily available. It can be regularly operated on 40-octane oil and in emergency on even lower-grade fuel.

The MRS-1 is 57½ ft. long, 13 ft. 6 in. high from the rail and 9 ft. 8 in. wide over grab irons. Its 16-cylinder two-cycle diesel engine is rated at 1,600 hp.

Despite its range of performance characteristics, the locomotive is made up of standard diesel locomotive wearing parts and assemblies. Thus the development of the locomotives was shortened by many months and it went into production without plant conversion. Furthermore, since most of the major components are standard, mass production could be started anytime without delay for changing facilities. In addition, there is no replacement-part supply problem.

Requirements Self-Evident

The requirements in military railroading for a locomotive such as the MRS-1 are self-evident. It is widely recognized that American railroads with their diesel locomotives haul much longer trains at faster speeds than those of any other nation. The Transportation Corps sought the development of a diesel locomotive that would make it possible to apply the inherent advantages of American motive power wherever needed. Developing a locomotive to meet this requirement was difficult because no other continent has the roadbeds, rails, bridges, and other structures that will support the weights of locomotives that are in common use in the United States. Thus the problem which arose, and which was successfully overcome, was that of packing more equipment into less space and with less weight than in the standard U.S. locomotive without losing any power. At the same time basic simplicity had to be preserved to insure easy maintenance and repair.

To date the Transportation Corps has ordered 83 of the new switchers. Some of these are already in overseas service. Before being shipped overseas a number of them were service-tested on midwestern railroads.

MRS-1 Performance

In Korea the MRS-1 made its initial run from Pusan to Seoul in August 1952. It was operated at a speed up to 40 m.p.h. Poor roadbed and track conditions, as well as exceptionally sharp curves, made it necessary to keep within that speed. With the arrival of a second MRS-1, both have been placed in service on the Korean National and have been performing very satisfactorily.

Another MRS-1 was sent to Germany in April 1953, where a six-month user-service test was contracted with the German Federal Railways. Tests in Germany have disclosed that the MRS-1 has the horsepower of the World War II 2-8-0 steam locomotive in road service and in addition has more tractive force at slower speeds. For example, on a test run on a 2.2 per cent grade between Aschaffenburg and Wuerzburg, where helper service is normally employed with the usual eight-car German passenger train, the new switcher bettered scheduled running time without a helper.

Another MRS-1 is also undergoing tests in Alaska. In view of Alaska's severe winters, special emphasis is being placed on observing the locomotive's behavior while being operated in extremely cold weather.

Army rail equipment must not only meet the demands of topographical and climatic conditions overseas but it must keep up with the changes in the equipment and supplies it must haul. Thus the development of the new

THE NEW ARMY Medical Service hospital cars.

M-47 tank and other heavy equipment called for the availability of a flat car capable of carrying the "heavy stuff" economically.

The Office of the Chief of Transportation, Department of the Army, made special studies of the problem, including equipment available to the commercial carriers and special clearance surveys to determine the basic dimensional characteristics of cars which would have to be constructed if they could not be obtained in sufficient quantity from the railroads.

Because of the always high demand for flat cars by all shippers, both military and commercial, and because of the limited number of cars available, consultation was held with representatives of the American railroad industry. This was in keeping with the Army's policy not to compete with commercial carriers if they could supply the necessary equipment. It was determined advisable to supplement the railroad ownership of heavy-duty flat cars with specially constructed cars to be owned by the Army. This would then insure that the transportation requirements of especially heavy military equipment would be met.

In June 1952 the first of several hundred of the Transportation Corps' new heavy-duty flat cars were put to use. They are of unusually heavy design weighing 110,000 lb. when empty, have six-wheel trucks to distribute the loads, and are designed for high-speed operation. Thus they can be coupled in passenger trains, for which reason they are equipped with signal and steam lines. The cars have high beds because of special clearance requirements and are over 10 ft. wide.

The 54-ft. cars can carry two M-47 tanks which heretofore were loaded but one to a car. The tanks weigh 93,000 lb. each, very nearly the capacity of the cars which are rated at 200,000 lb., approximately double that of the average commercial flat car.

New Hospital Cars

While greater emphasis is being placed on locomotive and freight rolling stock, the Army does not neglect its personnel-carrying equipment. The need for a modern hospital car was especially great. The World War II hospital cars, while providing adequate service, lacked many of the refinements and facilities considered necessary for the proper care of patients being moved long distances.

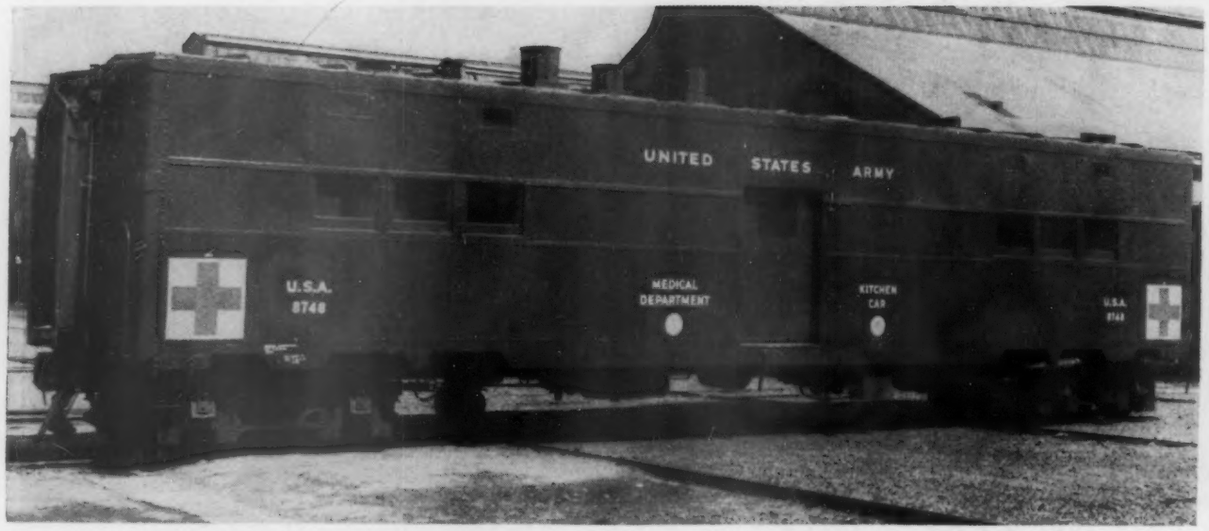
Accordingly, the Army Medical Corps determined in 1950 that a new type of ambulance car should be planned for future use. This project barely got under way when it was necessary to ship to Korea ambulance cars stored within the United States. The design of the new ambulance cars was hastened and purchase was made in order to replace the cars shipped to Korea. This new car for the first time provides the Army Medical Service with a hospital car meeting modern hospital standards.

Facilities such as kitchens, adequate nursing space, medicine cabinets, storage space for patients' personal belongings, and additional power to keep the car equipment operative in the event it is detached from a train or from rail siding facilities, were considered essential to the proper care and treatment of patients. Sixty-three ambulance unit cars of this type are being procured. These new cars replace 62 World War II type hospital cars used in Korea and one hospital car which was converted to other uses.

Designed by the Transportation Corps' Research and Development Station in cooperation with the Office of the Surgeon General and the manufacturer, the new ambulance unit cars conform to standards set for interchange service in this country, Mexico, and Canada. Basic underframe, body framing, truck suspension, coupling and dimensions are identical to that of commercial railway passenger equipment. The cars are constructed to provide a superstructure and underframe of high tensile strength. They are 85 ft. long; 10 ft. wide; and 13 ft. 6 in. high.

Standard four-wheel trucks equipped with all-helical springs and vertical and lateral shock absorbers together with roller-bearing axles add to the ease of operation of the car and comfort of the patient.

Each car has a capacity for 27 patients, 6 medical



A HOSPITAL KITCHEN CAR on a siding in Korea.

HOSPITAL CAR BERTHS are in three tiers. The lowers provide daytime seating for ambulatory patients. Insulation is Fiberglas. The cushions are sponge rubber. Concrete floors are covered with asbestos tile.

attendants, 1 physician and 1 nurse. Some of the six berths normally used for medical attendants can be used to carry patients thus increasing its potential capacity to 33 patients. The new and specially designed triple-tier berths may be converted to seats similar to those of a standard Pullman. This arrangement allows ambulatory patients to be seated during the day. The World War II type car provided only a bench type seat which was unsatisfactory for ambulatory patients.

Beds are adjustable so that the patient's feet or head may be elevated as required. Each bed is equipped with a night light and a tray with cutouts to hold a wash basin, soap, and water glass. Another movable tray holder fits across the patient's body and holds food trays, books, or magazines.

Like other branches of the Military Services, the Transportation Corps obtains some of its rolling stock overseas under the Department of Defense's offshore procurement program. Equipment thus purchased is used within the general area in which it is manufactured. This type of procurement aids the economies of other countries and at the same time provides the Army with needed equipment at lowest possible cost. Manufacturing costs are usually lower overseas and in addition the Army saves the cost of shipping this equipment. At the same time there is hardly any competition with our rail-equipment industry as the cars are used only overseas and represent but a small portion of the total Army requirements.

As part of offshore procurement, equipment has been manufactured in Japan and Germany on Transportation Corps specifications. In Japan emphasis is placed on standard box cars, many of which are used in Korea. In Germany a number of locally manufactured troop sleepers have recently made their appearance on U. S. military trains. They are 42-berth sleepers of simple design. Thus far 61 have been ordered. About one-third will be used as regular sleepers while the remainder will serve as hospital cars. Employment of coil springs and heavy duty shock absorbers give a steadier, smoother ride than the standard German rail cars previously used. Soundproofing and especially wide aisles provide added comforts.

Maintenance Important

Just as on civilian roads, equipment maintenance plays a vital role in keeping the Army's rolling stock on the track.

In the United States most overhauls and maintenance on locomotives are accomplished at the Transportation Corps's two railroad repair shops. One is located at Ogden, Utah, to serve western United States; the other is at Fort Holabird, Baltimore, Md., to serve the area east of the Mississippi. In addition Army mobile maintenance shops take care of less extensive repairs.

ARMY Transportation Corps men participating in on-the-job training on the B&O.

In the field of storage and maintenance constant efforts are being made to keep all stock in superior condition. For example, the Transportation Corps Depot at Marietta, Pa., recently conducted an experimental project on the processing of a 120-ton MRS-1 diesel-electric locomotive for on-track long storage which has proven to be highly satisfactory.

Water-Shed Protection for Stored Locomotives

After first having accomplished all internal processing, the locomotive was further protected by the construction of a water shed over it to shield it from direct exposure of the elements. The framework for the water shed was constructed from 1 in. by 4 in. and 2 in. by 4 in. lumber which in turn was covered by target cloth. Strippable adhering coating was then sprayed upon exterior surfaces of the target cloth to present a water- and air-tight surface to overhead and side attacks of wind, snow, sleet and rain.

Internal processing was accomplished for protection against sweating within the interior areas of locomotive. However, there was no attempt made to seal the locomotive itself from air circulation. The protective shed was made so as to reach to within 9 in. from the ground around the entire locomotive. The bottom of shed was not enclosed and four ventilators were installed along the center of the roof, thereby inviting air circulation for removal of moisture condensation.

The depot previously stored the same type of locomotive by processing the locomotive internally and then applying target cloth, coated with strippable compound to all openings and vents, sealing them against moisture entrance.

In making a comparison of costs involved in the two types of preventive processing, the water-shed method compared so favorably from a cost standpoint (as well as from a standpoint of protection) that plans have been formulated to continue the use of the water-shed type for on-track storage.

Overseas maintenance frequently poses problems which, thanks to our skilled labor and excellent repair facilities, do not exist in the United States. For instance a Transportation Corps officer in charge of a locomotive repair shop in Korea found that the lack of proper flue-cleaning tools kept the locomotives off the tracks for extended periods. The method used was to have six men with chipping hammers bang away on a single pipe until all the scale has been chipped off. This process also loosens the carbon and corrosion on the inside of the pipe.

Fighting against time to keep the locomotive out of the shop, the officer decided that a flue rattler commonly used in the United States was necessary. This equipment was built and its use saves 156 man-hours per day, on top of providing a far superior method than the one used by the Koreans. The amazing thing about this cleaner is that it was put together from memory and made out of scrap pieces and odds and ends.

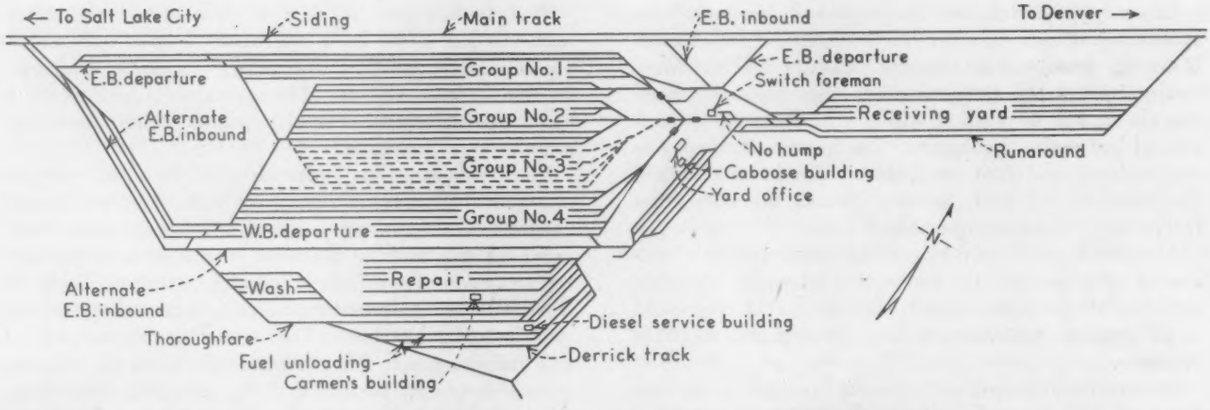
This is but one instance of how Army railroader ingenuity has pitted itself against all types of unexpected obstacles that military railroaders encounter overseas. In this unique way the Transportation Corps is even "modernizing" local rail equipment being used for military transportation.

The Transportation Corps through its close association with the American railway industry is in a fortunate position. Working side by side with rail equipment manufacturers it is ever on the alert to develop and test new rolling stock. Its military railroad personnel, most of them with seasoned civilian railway experience, are well qualified to look ahead. They know the importance of rail transportation. They want to do their job and do it well. It is only natural that they want the best equipment. Thanks to these men and the American railroad industry, the Army can boast of a fine fleet of rail equipment with which its men are proud to serve.

THE NEW YARD, seen here looking west, with crest of hump in right foreground, has an overall length of about three miles.

PUSH-BUTTON RETARDERS IN . . .

New facility constructed at Grand Junction, Colo., is designed to increase the speed of handling cars and to get greater capacity



FLEXIBILITY of arrangement is one characteristic of the new yard. Note, in this diagrammatic sketch, that three of the classification tracks in Group I serve also as eastbound departure tracks and that three of the tracks in Group 4 are also westbound departure tracks.

HUMPMASTER'S OFFICE at crest of hump has control panel for operation of switches leading to classification tracks. Five-story yard office can be seen in background.

. . . New D&RGW Yard

In building a new retarder-classification yard at Grand Junction, Colo., the Denver & Rio Grande Western was motivated by several considerations, including greater speed in classifying cars—and greater speed it has obtained. This yard receives unblocked trains made up just as cars are received from connections. While engines are being serviced and crews changed, those trains are classified through a series of push-button controlled retarders and power switches into blocks which can readily be switched to connecting lines at terminal yards. Within 1½ hours after arrival, unblocked, a train will pull out of the yard completely classified, and leaving behind only rip-track and local cars.

As in the design of all retarder-classification yards, operating requirements dictated both the extent and the quality of facilities provided at the new yard, known as East yard. To understand its operation, operating characteristics of the D&RGW as a whole must be understood.

The Rio Grande was originally a series of narrow-gage lines, which were progressively widened to standard gage. As the road developed, its traffic came mostly from local short hauls serving ore and coal fields. Finally, after construction of the Dotsero (Colo.) cutoff in 1934, the Rio Grande had become stabilized into a main line which might be likened to a giant lasso, the western end of which is located at Ogden, Utah, and which passes through Salt Lake City, then to a junction at Dotsero to form a giant loop that seemingly reaches out to corral all the business it can get from connecting lines at Denver and Pueblo. It is the two sides of this loop which make the operating problems of the Rio Grande more complicated than those of some bridge roads.

As traffic developed, five major flat yards were built on the Rio Grande. One is at Ogden. The second, only recently modified, is its Roper yard at Salt Lake City, which was one of the first yards in the country in which yardmasters were given offices in towers so they could have a panoramic view of all yard operations. A third major yard is called North yard at Denver, and a fourth is at Pueblo, Colo. A fifth yard was located at Grand Junction. As business increased, the yard at Grand Junction expanded until limitations of space prevented it from getting any larger. Soon it was no match for the 90- and 100-car freight trains that passed through it.

Freight received from connections at one end of the

RETARDER CONTROLS are on fourth floor of yard office. Note string of cars being pushed over hump.

line had to be blocked by flat switching for delivery to a number of connections at the other end. At its western terminals, the Rio Grande interchanges with the Southern Pacific and the Union Pacific at Ogden and with the UP and the Western Pacific at Salt Lake City.

On the east, it connects with the Missouri Pacific, the Colorado & Southern and the Santa Fe at Pueblo, and with the Santa Fe, the Burlington, the C&S, the UP and the Rock Island at Denver. Every train destined to any of these terminals has to have at least one block for each connecting line. It has been found to be a simple matter to get Rio Grande freight over the line, in spite of the mountainous terrain, but the elapse of time between connections often soared because of the switching which had to be done in flat terminal yards.

New Yard Described

The best possible location for a single yard designed to classify all trains into blocks for all connections, thereby relieving terminal yards of this chore, was just east of Grand Junction—a division crew point at about the center of the main line. Within 520 acres of land at that point a yard three miles long has now been constructed and placed in service. It encompasses on the east end six receiving tracks and one runaround track, each of which will accommodate about 125 cars. The receiving tracks are used for traffic in both directions, although located at the east end of the yard. Naturally this location makes it easy for a westbound train to enter the receiving yard, but for eastward trains it isn't quite so simple. On the other hand, eastbound trains have been given two alternate routes. They can pull from the main track, which is on the north side of the yard, to a siding through power operated switches in the west end of the yard, thence to an inbound track through a spring switch in the vicinity of the yard office, and from there can enter any track at the west end of the receiving yard. Should that route be blocked, an alternate eastward inbound route runs from the west end of the yard along the south side of the classification tracks, and south of the hump.

The classification yard now consists of three groups of eight tracks each. Each group is served by an individual retarder, and a master retarder serves all three groups. Groups 1 and 2 lie on the north side of the yard and are adjacent. Group 4 is separated from Groups 1 and 2 by a space large enough to accommodate another group (Group 3) of seven tracks when and if expansion becomes necessary. The first three tracks in Group 1 extend all the way to the west end of the yard. These three long tracks are not only long classification tracks but are also the eastward departure tracks. The next two tracks end, as can be seen on the plan, about half way to the west end. The other three tracks of Group 1 terminate at their west end in a ladder that is also common to the west end of all tracks in Group 2. This makes them relatively short. The ladder track on the west end of these two groups extends through a lead track into the ladder on the west end of the tracks in Group 4, except for the three south tracks, which in turn become the westbound departure tracks and extend all the way to the west end of the yard. Thus, in effect, the D&RGW has a classification yard which has on its north side three long, train-length eastbound departure tracks and on its south side three long train-length westbound departure tracks, with a series of shorter classification tracks in between.

South of the classification tracks other facilities are located, including five repair tracks, two fueling and servicing tracks, five wash tracks, and incidental yard facilities, which are shown on the accompanying plan. For night-time illumination there are eight floodlight towers, each 110 ft. high.

Buildings

The yard's largest building is the yard office, consisting of a two-story brick structure with a five-story tower. The top floor of the tower houses the yardmaster and the fourth story the retarder machine. Other buildings include the rip-track building, the diesel servicing building, and a caboose building which contains signal maintainers' equipment and supplies, as well as dope and other supplies for cabooses. There is also a small building for the switch foreman, located on the top of the hump just east of the yard office.

Track Construction

In general the entire yard is constructed on land which slopes slightly downward to the west. The receiving yard was built on a 0.30 per cent descending grade to within 400 ft. of the crest. At that point the gradient rises at 0.50 per cent and then breaks over the crest at a minus 4.10 per cent gradient on which the master retarder rests. It then breaks into a downward grade of 2.08 per cent for 100 ft., followed by 100 ft. of 1.30-per cent grade, then 150 ft. of 0.80-per cent grade on which the second retarders are located. From the retarders on through the classification yard the tracks are laid on a 0.20 per cent gradient to within 300 ft. of the end. At that point there is an adverse grade of 0.40 per cent which continues for 300 ft. to prevent cars from running out of the tracks. This adverse grade breaks into a 0.30-per cent descending grade for the remainder of the yard.

The subgrade on which the entire yard is built con-

sists of adobe clay which becomes very slippery when wet. To overcome this objectionable feature, the entire yard area was covered with a minimum of 8 in. of selected material consisting mostly of screened pit-run gravel with adobe as a binder. Over the crest of the master-retarder grade and for 600 ft. of the classification tracks, the thickness of this layer of selected material was increased from 8 in. to 12 in. On top of this material was placed a 4-in. layer of sub-ballast consisting of screened pit-run gravel with a maximum size of 1¾ in. This layer covers the entire yard. The tracks were then ballasted with crushed gravel having a maximum size of 1¾ in. and were raised and machine tamped so as to obtain at least one inch of this ballast under the bottoms of the ties. In the area between the hump and the midpoint of the short classification tracks 6-in. cross drains were installed on the adobe at the bottom of the selected material at 300-ft. to 400-ft. intervals.

NERVE CENTER for the extensive communication system blanketing the yard is incorporated in this console.

Retarder System

Under the retarders, this plan of subgrade stabilization was altered slightly. Pits were dug in the subgrade 10 ft. wide and about 3 ft. deep and as long as each retarder. The bottoms of these pits were crowned about 3 in. in the center, and 12 in. of selected material was placed in them. Lateral drains were then laid at the sides of the pits. These drains are made of slotted boiler flues welded together at the ends. Next, 24 in. of slag was deposited in each pit, on which the retarder ties were placed.

All car retarders in the new yard are similar, each being composed of two 49-ft. sections. The retarder on the lead to each group provides final retardation on cars en route to all tracks in that group. The master retarder, of the same length, located on the grade down from the crest, is used to maintain adequate spacing between cuts and cars, and to check the speed of heavily loaded cars which might accelerate too much. As is usual in this type of installation, using equipment and control apparatus made by the General Railway Signal Company, two control levers operate each retarder, making it possible to use either the entire retarder or each half separately.

On the control panel for the retarders two short toggle levers are located to represent each retarder. These levers each have three positions: (1) A position toward the operator for no retardation; (2) a center position for a light application of the retarder; and (3) a position away from the operator for heavy application of the retarder. The operator moves the two levers to control both halves of an entire retarder, or he controls each lever separately as required. From the switch list the operator knows whether cars are empty or loaded or whether loaded heavy or light. On the basis of this information he sets up the retarder control as the cut of cars approaches. As he watches the cars moving into the retarder, he decides when the speed is reduced sufficiently, and at that time flips the levers to the open position and the cut is released to run freely.

All switches for the classification tracks are controlled by push buttons in the manner of the well-known automatic switching system. This is the system in which, for each cut of cars, the switch foreman on the hump pushes a button which is marked with the particular classification track to which the cut is to go; the control then automatically positions the switches ahead of the cut as it passes down the grade and to its track.

All 31 power switches involved in the classification yard layout were made by the General Railway Signal Company. The six spring switches involved at various points employ buffers with a Ramapo Ajax spring.

Batteries Used for Power Supplies

Unlike most retarder installations which have a motor-generator set and auxiliary batteries to take additional load, if necessary, East yard uses batteries only for its entire power supply. For this purpose 130 cells of Exide EME 21 batteries are provided—enough to give 8 hr. of stand-by service, if necessary. These batteries are trickle charged for continuity of service.

Communication System

To assure maximum speed in handling cars, comprehensive systems of communications have been provided. A total of 35 two-way talk-back speakers and 26 paging speakers are installed throughout the yard area. Also, a radio system provides instant communication between the yardmaster's tower, carmen and clerks, etc., on the ground, the hump engine and other engines in the yard, and the supervisor's automobile. In addition, a pneumatic tube system extends between the various offices in the yard office building and the switch foreman's building.

The heart of the communication system is located on the fifth floor of the yard office where the yardmaster has a control panel for the paging and talk-back speakers, as well as radio communication equipment. He is also supplied with the usual commercial message and dispatcher's phones. On the second floor of this building are located all the amplifiers, the relays that control them, the rectified power supply, and the radio control panels which permit adjustment of the inter-connection between the radio and speaker systems.

The yard office and tower are air conditioned. The

HOW THE NEW YARD IS USED

All facilities provided at the Rio Grande's East yard are designed and positioned to provide the fastest possible classification of cars—so fast, in fact, that a whole train can be blocked within 1½ hr. while crews are changing and engines are being serviced. Other functions performed during this period include inbound inspection, bleeding, trimming, coupling air hose, outbound inspection and air test. Let's see how it's done, for instance, with a westbound train from Pueblo.

In the first place, the train was made up at Pueblo just as the cars were received from connections. In other words, there is possibly a Missouri Pacific block, a Santa Fe block, a Colorado & Southern block and one from Pueblo industries, including the Colorado Fuel & Iron steel mill. Each of these blocks may have cars destined for the UP and the WP at Salt Lake City as well as blocks for the UP and SP at Ogden. Thus the purpose of East yard is to classify these widely separated blocks into single blocks for individual connections.

As soon as train No. 61 arrives in the receiving yard at Grand Junction at 2:30 p.m., about 12 hours after leaving Pueblo, a hostler picks up the engine and runs it to the service tracks. While this is going on a clerk, who has previously driven from the yard office to the east end, picks up the waybills at the caboose and brings them back to the yard office. As soon as the train has stopped, a group of car inspectors swarm over it making the customary inspection and bleeding the air reservoirs. Enough inspectors will be assigned to this work to complete it in from 15 to 20 minutes.

In the meantime the pusher—a Fairbanks-Morse, 1,500-hp. locomotive with booster—waits against the caboose for a signal "to shove." That signal will be given either by cab-signal indication, or by the radio with which the engine is equipped.

When classification starts, the end blocks of the outbound train will be switched to the shorter classification tracks and the middle block will be sent to one of the long tracks, which will then become the departure track. As soon as the last car goes over the crest—the caboose will go over too with the rear block if it is to go through to destination—the pusher engine will move over the crest and become a trimmer engine working on the rear blocks of the outbound train. It will pick up blocks from the short tracks and place them against the middle block on the departure track. At the same time a regular trimmer engine will be doing the same with the front blocks at the west end of the yard. As soon as these blocks have all been doubled together, air is coupled into the cars to save the time of doing it with the outbound engine. Finally, this engine, having been serviced while the train was being classified, couples to the head end, tests the air and awaits the signal to pull—about 1½ hr. after arriving at the yard.

This speedy system will be altered only when traffic conditions warrant consolidation of a Denver train with one from Pueblo. In that case, the first to arrive will be classified but held until the second arrives a short while later. Under some conditions this method is expected to result in solid trains going out of Grand Junction for the SP or the WP. Above all, although the new East yard at Grand Junction may slightly increase running time between east and west terminals, it will decrease appreciably total elapsed time between connections by eliminating flat switching at all terminals.

SWITCHES in the yard have electric lamps. Several talk-back speakers may be seen along the left side of this ladder track.

interior is all glazed tile while the exterior consists of hard-matt brick. Concrete floor slabs on the fourth and fifth floors are cantilevered beyond the walls to form platforms on three sides for the washing of windows. The floors are reinforced concrete, hardened by a patented surface hardener.

The carmen's building is constructed of cinder block on treated timber piles. The floor is of 6-in. concrete, and the interior walls are 8-in. cinder blocks. The interior contains a compressor room, a machine shop containing a cut-off saw, a drill press, a planer, a band saw, a work bench, a paint-storage area, a car foreman's office with an adjoining small write-up office, a locker and washroom, a small welding room, a so-called air room, a small packing room, and a toilet. On the roof is an "aquatower" for the purpose of cooling compressor condensing water.

The signal and caboose building is also constructed of cinder block resting on treated timber piles topped by concrete footers. It contains a grease room where heavy grease for maintaining the car retarders is kept, a signal maintainers' room, a room for caboose supplies, and a room to house a standby diesel electric power plant.

The diesel service building is a Steelox type, 59 ft. long by 16 ft. wide. It houses the diesel filter cleaning equipment, pumps for handling diesel fuel oil and lube oils, a steam boiler plant and a small write-up office.

East yard was conceived by K. L. Moriarty, general manager, and planned in cooperation with the transportation department. Details of design and construction were completed under the general direction of J. Ayer, Jr., chief engineer, with field forces being supervised by Chet Erickson, resident engineer. O. K. Peck, engineer of structures, supervised the design of all buildings; B. W. Molis, signal engineer, directed installation of the signal facilities, including retarders, and W. W. Pulham, superintendent of communications, supervised installation of communication facilities.

CLASSROOM SCENE looks familiar—but basic subject, "human relations," is a lot tougher than 'readin', 'ritin', and 'rithmetic.

"SELLING OURSELVES." Agents F. M. Hunt, Philadelphia, and C. T. Groton, Norfolk, put on a skit to show how courtesy wins cooperation.

THIS IS THE PRR PROGRAM FOR . . .

Triple-Goal Employee Training

Better job knowledge, better employee relations, and more customers for the company are objectives of comprehensive college-supervised plan

With the triple purpose of increasing employees' knowledge of their individual jobs; of helping them to strengthen their personal relations with fellow employees; and of winning more friends and customers for the railroad, the Pennsylvania now has well under way a comprehensive long-range system-wide program of employee training which emphasizes the importance of "human relations" (*Railway Age*, April 13, page 11). An added objective is improvement of "communications" of an informal, personal type between management and men and between men and men.

The program, approved in its present form by the road's directors in October 1951, had its genesis in the opinion of top PRR officers that no railroad—no organization of any type—can give good service or have good public relations without an equally good attitude on the part of its employees, and a sincere desire on their part to give good service. To have such an attitude and such a desire, these officers believe, each individual employee must feel he is working for a good company; must feel the company is treating him fairly and with consideration; and must know where his particular job fits into overall company organization and operation.

Program Began with Supervisors

Any program designed to develop such attitudes, these same officers also feel, must begin with supervisors, because "to the employee the supervisor is the company." In line with this reasoning, the first step in the comprehensive program was to offer to supervisors a course in human relations—in "how to handle people."

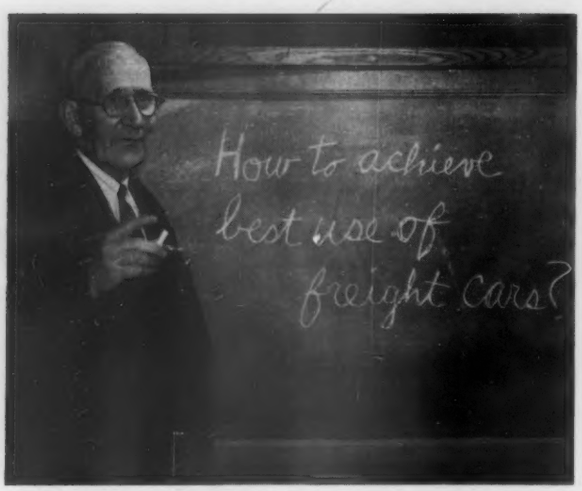
As far back as 1949, therefore, the management training department of Pennsylvania State College was asked to work up an appropriate program. The college authorities, in turn, began by surveying the railroad's Pittsburgh division to find out to what extent supervisors would be interested, and what they would want, in such a training course. As a result of this survey, the college worked up a program for a course consisting of hour-long discussion sessions, to be held once a week for 15 weeks.

Although participation in the course was wholly voluntary, 90 per cent of the Pittsburgh division supervisors took it; it proved so good, both in execution and results, that the cooperation of 11 additional universities* was enlisted to extend the course over the entire Pennsylvania system. By now, all of the railroad's approximately 6,000 supervisors (i.e., all officers up to and including general managers and regional vice-presidents) have had a chance to take, and most of them have taken, this basic training in getting along with people.

Subsequent "refresher" courses, and other courses on such subjects as safety, discipline, loss and damage, and transportation economics, are now under consideration.

In this preliminary course, incidentally, supervisors were "mixed" by departments, but not by echelons; in

*Cooperating colleges, in addition to Pennsylvania State, are Ohio University; University of Illinois; Purdue University; Temple University; New York University; University of Maryland; University of Delaware; College of William and Mary; Bethany College; Bucknell University; and University of Buffalo.



A "WORKSHOP SESSION" follows each main address at the yardmasters' conferences. Here John D. May, of Weirton yard, a yardmaster for 33 years, has his say.

COFFEE AND DOUGHNUTS, and other opportunities for recreation, provide breaks in routine of yardmasters' meetings. But discussion of mutual problems still goes on.

other words, any group taking the course might have included gang foremen, track supervisors and yardmasters, but not, for example, yardmasters and trainmasters.

The company is now experimenting, however, with a series of similar "vertical" courses at Altoona, which include men from all levels of management, and emphasize "communications" between different levels.

To Reach the Public

But training of supervisors alone, helpful as it might be for better *employee* relations, had little immediate effect on *public* relations. For that, something more was needed—and that something, railroad officers felt, was specialized training for men having direct contacts with the public.

The first group selected for training of that type was the Pennsylvania's 1,000-odd local agents. Beginning last November, they, in groups of from 35 to 40, began going to the Penn State and Purdue campuses for five-day (Monday-through-Friday) seminar courses emphasizing customer and community relations.

Concurrently, because yard operation is a special problem on the Pennsylvania, with its extensive network of heavy-traffic main and branch lines and its numerous junctions and yards, a similar type of course was established for yardmasters.

The subject matter of this course deals primarily with the technical features of a yardmaster's job rather than with customer relations. Its primary purpose is to get the men to "thinking imaginatively" about their jobs, on the theory that "no man in the front-line ranks of railroading needs to be more flexible or more resourceful than a yardmaster, who faces changing situations every day—every hour."

Despite the difference in objectives and in content, however, the agents' and yardmasters' courses are conducted according to the same general plan. They are both held in university surroundings, in an atmosphere described as one of "searching for the truth." They are both given to small informal groups of men picked from all parts of the system. They are both conducted with the assistance of university faculty members and of company officers, some of whom are present at all sessions to lead discussions, and to answer questions. And both are being continued, on a schedule of one agents' course and one yardmasters' course each month, until all Pennsylvania employees in both categories have had an opportunity to attend.

With agents' and yardmasters' courses well under way, the railroad, early this year, swung into still another phase of its overall training program—the first phase, except the agents' course, to be directed specifically toward the objective of improving customer or public relations.

Extended to Trainmen

Because this part of the program was intended for passenger trainmen, the spadework was a little different from that which preceded courses for supervisors and agents.

Here, the first approach was to general chairmen of the Brotherhood of Railroad Trainmen, on the theory that their wholehearted cooperation was essential if any training program for members of their organization was to be successful. The groundwork for this approach had been laid when ranking railroad officers explained the program to general chairmen of the various labor organizations at a November 1951 meeting in Pittsburgh—a meeting which served the double purpose of letting these general chairmen know what the company planned to do, and getting their support.

The next step was for railroad representatives to talk to local representatives of the trainmen's brotherhood throughout the system, explain the company's objectives, and get from the employee representatives their views of the problems in passenger service and their ideas as to how these problems could best be solved. As a result of these talks, there were established two general committees, one for Lines East and one for Lines West. These committees—each of which included both railroad and brotherhood people, plus assisting repre-

TRAINMEN'S COURSES were developed after cooperative round-table conferences, like this one, between brotherhood representatives and PRR personnel men.

AFTER EXPLANATORY REMARKS, brotherhood and railroad representatives leave, turning the trainmen's sessions over to the men and their discussion leader.

sentatives from the cooperating universities—prepared a report and a suggested program directed toward the general objective—

"A Satisfied Passenger Is Our Security"

The program thus developed called for group meetings lasting at least an hour each, once a week for 10 weeks, with a university man and one or more Pennsylvania officers present at each session; the men, experience shows, want a university leader to guide the discussion. The original schedule, by sessions, was:

1—Outline of course, explanation of objectives and methods, and beginning of discussion of "human relations," i.e., relations between trainmen and their passengers and fellow employees.

2, 3 and 4—Continued discussion of human relations, with one session devoted primarily to job responsibilities.

5—Functions and problems of Maintenance of Equipment Department in relation to passenger-train service.

6—Ticketing practices and procedures.

7—Functions and problems of Passenger Traffic Department in relation to passenger-train service, with explanation of the railroads' competitive situation and problems.

8—Courtesy and service to passengers.

9—Functions and problems of train dispatching in relation to passenger-train service.

10—General review.

It was felt, however, that the men should help to build their own programs; hence, ample leeway was allowed for variations from the foregoing outline. Conference leaders, for example, were specifically told that "sequence of topics and discussions . . . may be varied" as the leader and the group desire. They were likewise cautioned to "make notes of problems raised by the group, so proper preparations may be made . . . for full discussion later."

Offered to conductors and trainmen on a wholly voluntary, and unpaid, basis, the program was given first to groups at Fort Wayne, Ind., and Indianapolis, and has since been extended to similar groups at many other points on the railroad. Here, again, the intention is to continue offering the course until all men interested have had a chance to take it.

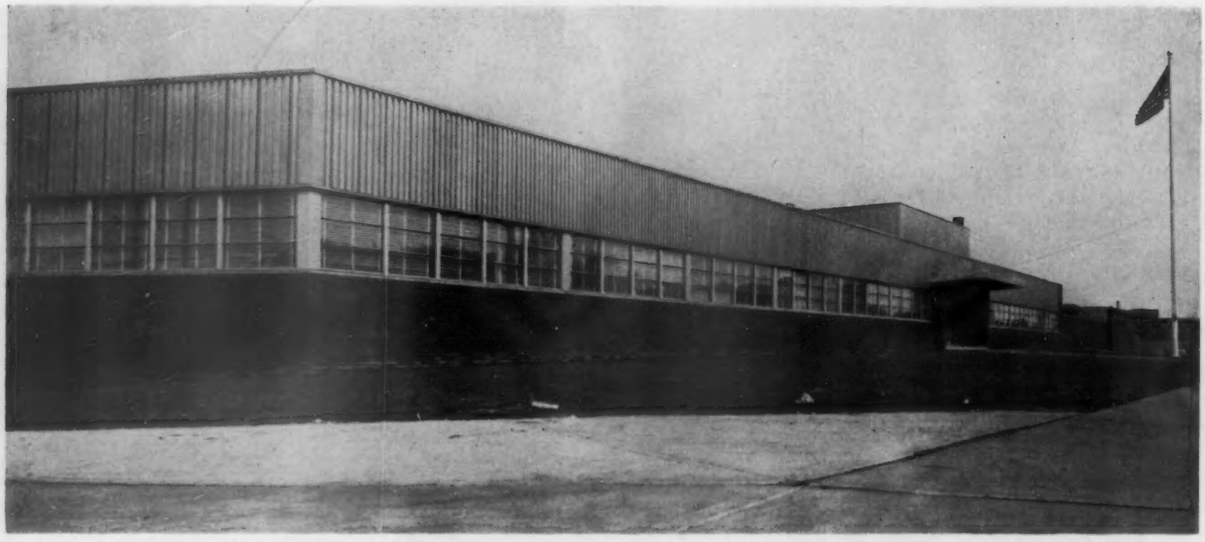
The latest phase of the program actually begun is designed for ticket, reservation and information clerks. Here, too, the primary objective, as in the trainmen's course, is better customer relations. As in the trainmen's course, also, cooperation of the appropriate union—in this case, the Brotherhood of Railroad Clerks—was sought, and obtained, as an essential preliminary step.

This training program for station employees was inaugurated at Pittsburgh this past spring, just prior to the opening there of the Pennsylvania's new reservation facility (*Railway Age*, May 18, page 144). Thus, it was possible to combine training in customer relations with instructions in the new method of selling reserved space. Consideration is being given to extending the same general program to all major on-line cities.

All phases of the training program, Pennsylvania officers emphasize, are in a constant state of flux, so far, at least, as details are concerned. Such flexibility is in line with the policy of letting the men build their own programs, and of covering those subjects which increasing experience shows to be most interesting and most necessary.

To provide for this flexibility, the railroad's top personnel officers meet with representatives of cooperating universities once or twice a year, to review accomplishments of the program to date, and to see what can be done further to increase its effectiveness.

That it has been effective is a fact of which the men responsible for it are firmly convinced—and their conviction is supported by the active interest displayed by all groups of employees to whom the training has so far been made available. This interest extends even to groups not yet covered; some yard trainmen, for example, have asked that courses be set up for them along the lines of those established for their fellows in passenger service. And such courses are being considered, since yard trainmen have an often overlooked, but frequently effective, source of otherwise untapped customer relations contacts, through their industrial switching work.



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NATIONAL MALLEABLE OPENS . . .

Technical Center for Product

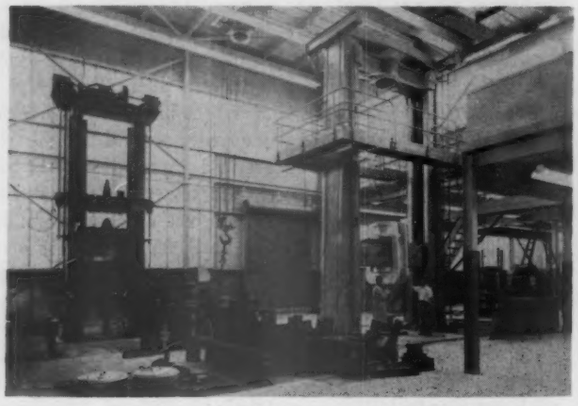
A complete technical center comprising a physical laboratory, a drafting room and office facilities for various engineering functions and sales engineering services was formally introduced by the National Malleable & Steel Castings Co. during the week of October 12 with plant inspections and demonstrations for representatives of industrial publications, of railways and of other industries.

The center, located adjacent to the company's Cleveland plant, is equipped for static, dynamic and fatigue testing.

In addition to the machines shown in the illustrations, there are a small drop test machine with a 1,640-lb. weight for dynamically testing couplers, coupler parts and other items, and two fatigue testing machines, one for conducting official A.A.R. fatigue tests on car-truck side frames and the other for testing journal-box lids and other small assemblies and specimens. There are several recording oscillographs with calibrating units for multiple pick-up devices, and a Dumont cathode-ray oscilloscope.

Outside the building the proving ground includes a test track on which are conducted impact tests on railway cars. The grade of the incline track is 12 per cent and speeds up to 22 m.p.h. can be developed. The equipment includes two standard steel box cars.

The center has still and both standard and high-speed movie cameras. There is a well equipped dark room. A small machine shop is available for production of jigs and fixtures needed in test and experimental work. Auxiliary equipment, such as Magnaflux, Stresscoat and hardness testing machines, is also available.



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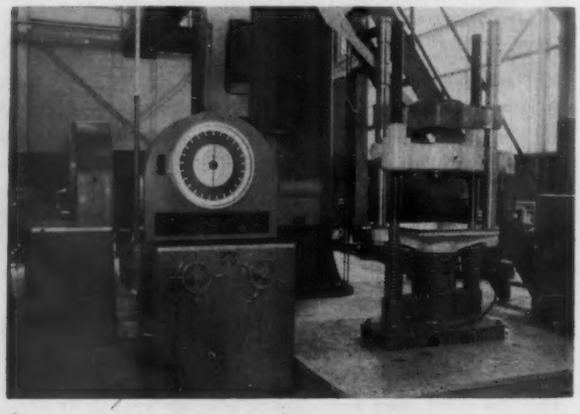

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Development

1 (Facing page, top)—The new technical center adjacent to the National Malleable & Steel Castings Co.'s Cleveland plant. The center has total floor space of 36,850 sq. ft.

2 (Facing page, bottom, left)—The "A" section of the laboratory. At the left is the A.A.R. 27,000-lb. drop-test machine used in dynamic testing of draft gears. The machine is mounted on a 500,000-lb. concrete block cushioned on 24 groups of nine springs each. At the right is a Tate-Emery 1,000,000-lb. Universal testing machine with testing clearances 10 ft. wide, 59 ft. long and 16 ft. high.

3 (Facing page, bottom, right)—A 120,000-lb. Universal machine for testing small specimens, in tension and compression. Available for this and the million-pound machine are automatic devices which record applied loads and deformations.

4 (This page, top)—The technical center seen from the rear, with the test track for impact tests on passenger and freight cars. A 65-ft. inspection pit inside the left end of the building permits underneath inspection and application of instrumentation. Stresscoat brittle lacquer applied to parts of car structures under study reveal critical stress areas where S-4 strain gages should be applied.

5 (This page, center, right)—Coupler angling and anti-creep machine, which permits studying coupling action of couplers of any type under any coupling conditions found in service.

6 (This page, bottom, right)—A 600,000-lb. Toledo press used for breaking in draft-gear friction surfaces and for fatigue testing.

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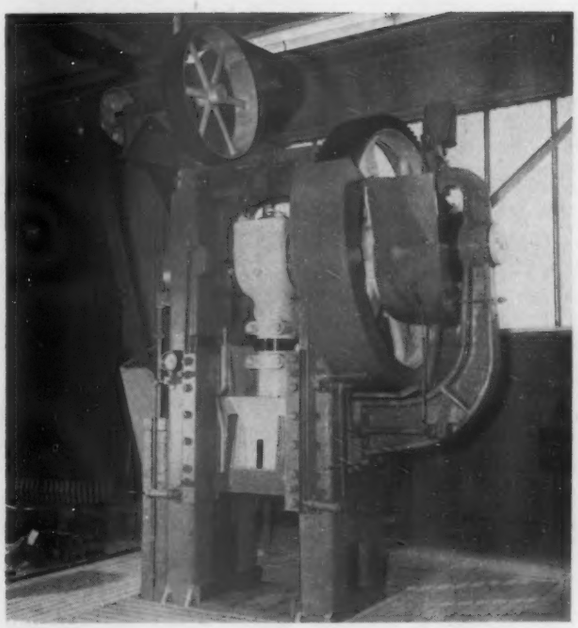

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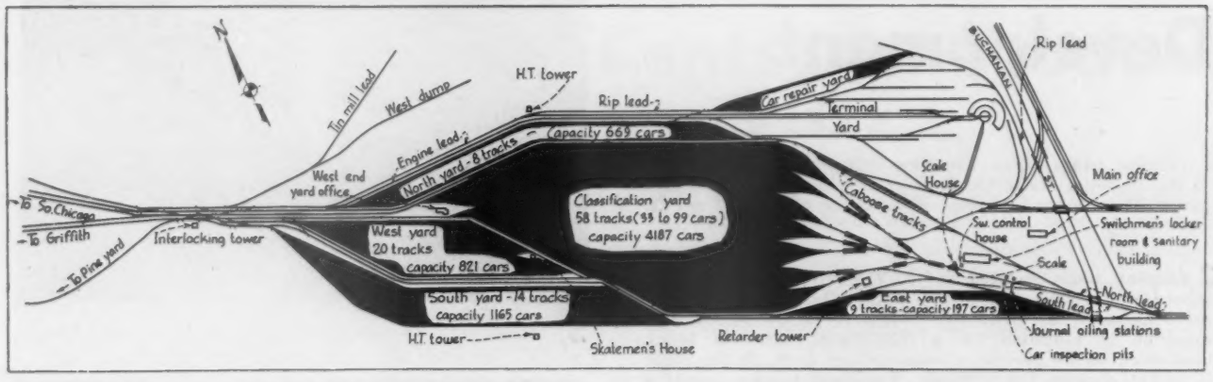
THE CLASSIFICATION TRACKS are in groups, so that each group retarder serves eight tracks.

NEW IDEAS IN KIRK YARD PUT . . .



THE EJ&E'S KIRK YARD at Gary, Ind., is the nexus of a continuous car assembling and classification operation.

Electronics at Work on EJ&E

In addition to conventional controls, an extensive test is being made of newest automatic retarder control system which is based not only on weight of cars, but also speed which is measured by electronic ultra-high frequency radiation using the Doppler effect

The new Kirk yard of the Elgin, Joliet & Eastern at Gary, Ind., has many advanced design features, including a test installation of the new General Railway Signal Company automatic retarder control system, in which retarder controls are based not only on classifications of weights of cars, but also on speed as measured instantaneously and constantly by an electronic ultra-high frequency radiation device placed between the rails near the leaving end of each retarder.

This system has been under development in this yard for the past eight months. For two months this system has been in full service, 24 hours daily, on four retarders, the 99-ft. master retarder on the hump, the 49.5-ft. retarder on the north secondary lead, and on the two 99-ft. retarders on the leads to the two north groups of tracks. Thus cars intended for any of the 16 tracks forming these groups are automatically controlled.

This new Kirk yard replaces eight small flat-switched

yards which formerly occupied much of the area. With the new yard, cars are handled from 24 to 48 hours faster than in the old yards. Safety has been improved and operating expenses have been reduced.

The new yard—described in the November 3, 1952, *Railway Age*, page 78—consists of 58 classification tracks, ranging from 33 to 99-car capacity, with a total capacity of 4,187 cars. From the crest of the hump, the single main lead descends at 3 per cent for 300 ft. The tracks there fan out to three secondary leads, and then into seven track groupings, including the 58 classification tracks, while the grade gradually flattens out through a 1.5 per cent gradient for 400 ft. and 0.8 per cent for 190 ft., after which a descending grade of 0.2 per cent is maintained on all the classification tracks.

The primary retarder on the main lead down the hump is 99 ft. long. The retarder on each of the three secondary leads is 49.5 ft. long, and the final retarder of each of the leads to the seven groups is 99 ft. long. These retarders are the modern, fast operating electric type. The switches are operated by high-speed electric switch machines that throw a switch in 0.6 second.

What Automatic Switching Is

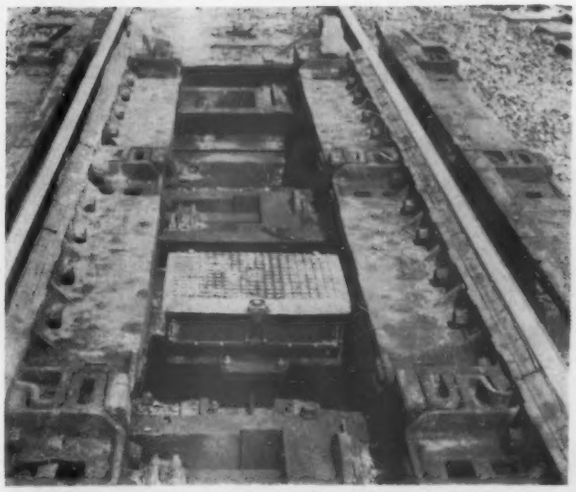
In automatic switching the switches in a route are automatically positioned ahead of a car or cut of cars as it passes from the hump through the various switches to its classification track. The automatic switching as installed at Kirk yard was developed by the General Railway Signal Company in 1950, and is the same as that in service or being installed at nine other yards in the western hemisphere.

In Kirk yard a switching crew uses a diesel-electric switch engine to push a string of cars up and over the hump. Each such crew includes an engineer, a fireman, a foreman, and two switchmen, one of whom acts as "pin-puller." The foreman is in charge of the operation, and when a string of cars is ready to be pushed, he goes to the small office at the crest of the hump. The Teletype list on his desk shows the initial and number of each car, whether it is empty, a light load, or heavy load, and the classification track to which it is to be routed. The list is also marked to indicate the number of cars in each cut.

On his desk is a sloping panel with a push-button for each of the 58 classification tracks. By pushing button "10," for example, he initiates controls so that the switches line up automatically ahead of the car or cut of cars as they pass down the hump and through the switches to classification track No. 10. By pushing buttons in sequence, he can "store" as many as four such route controls ahead of time. He uses his microphone, connected to an outdoor loudspeaker, to tell the pin puller the number of cars in the successive cuts. He can do this also by a button to operate an outdoor buzzer.

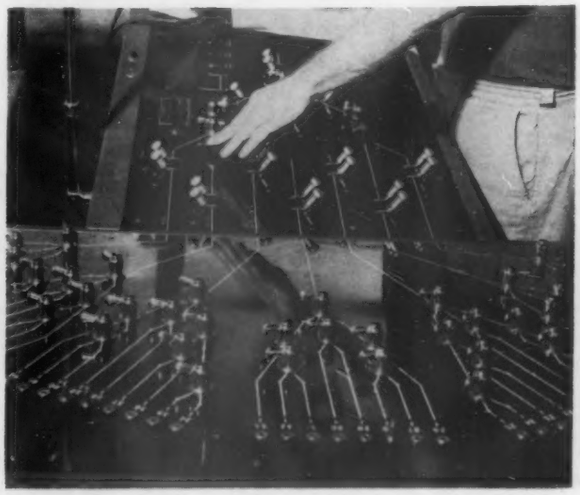
While one crew is pushing a string of cars over the hump, a second crew with a diesel switcher has gone down to the yard to get another string of cars and pull them through either the north or south bypass track to the north or south hump leads, preparatory to humping the next string. Thus a minimum of time is lost and classification is practically continuous.

Apart from the new automatic control, the operation of



THE ELECTRONIC ultrahigh-frequency speed measuring unit is in a case between the rails near the leaving end of a car retarder.

THE AUTOMATIC weight detecting unit is located alongside one rail in approach to the first retarder going down the hump.



THE OPERATOR, by use of the special modifying lever, can make moderate increases or decreases in release speed of the group retarder.

AUTOMATIC SWITCHING controls are initiated by foreman in hump office.

ELECTRIC HEATERS prevent snow from obstructing switches.

CONSOLE ON DESK in office of West End yardmaster enables him to communicate with his crews and with other offices.

the retarders is under manual control by a man at a machine on the top floor of a tower located on the south side of the throat and retarder area. The floor level of this operating room is 50 ft. above rail level. Large windows in the front and part of the sides of the room afford a clear view of cars as they pass down the hump through the retarders and well down along the classification tracks. The control machine is of the desk type, shaped like a capital "T." The right-hand panel, 20 in. by 42 in., is directly in front of the operator, and the cross panel, 24 in. by 54 in., is just to the left. On these panels, each track is represented by a white line 1/8 in wide. On these lines, and at the place corresponding with each retarder, there are small toggle type levers. Each 49.5-ft. retarder is operated by one machine, controlled by one lever. One half of each 99-ft. retarder is operated by a separate machine, so that there are two levers for each of these longer retarders. When a lever is in the normal position the corresponding retarder is controlled to the open (non-retarding) position. Each lever can be thrown to any one of two other positions to secure light or heavy retardation.

Automatic Retarder Control

In the new automatic electronic car retarder control system, the cars are not actually weighed but are automatically classified as (1) light, (2) medium, and (3) heavy. The classifications in these ranges of weight are selected by a new device known as a weight detector unit which is mounted alongside the field edge of the south rail a few feet in approach to the first retarder going down the hump. A treadle on this device is normally in a position about 5/8 in. above the level of the top of the rail, being so held by a strong coil spring similar to those used in some freight car trucks. The amount which the treadle is depressed depends upon the weight of the car. A connection from the treadle actuates a circuit controller to close contacts in accordance with the weight.

At the same time, as the car moves into the retarder its speed is measured by the ultra-high frequency radiation device. This device is housed in a box 22 in. wide by 16 in. deep by 10 in. high, set between the rails, with the top of the unit about 2 in. below the level of the top of rail. The unit rests on a pedestal which is mounted on a footing independent of the retarder structure. Such a unit is approximately 8 ft. from the leaving end of each 49.5-ft. retarder. (Two such devices are used for each 99-ft. retarder.)

The electronic equipment in this device sends out ultra-high frequency waves, in the direction toward the oncoming car. Some of these waves are reflected back, to be received by the device. Because these reflected waves come from a moving object, there is a shift of frequency of the reflected wave (known as the Doppler effect). The difference in frequency between the original and the reflected waves is a measure of the speed of the approaching car. With continuous radiation and reflection while the car is in the retarder area, the measurement of speed is not only continuous but also practically instantaneous.

To change from manual to automatic control, the man in the tower throws the lever for that retarder from its normal manual control position to the "A" (automatic) position. The electronic measures of the weight

and speed of cars are then effective in controlling relays in the tower which control the retarder automatically to adjust itself as required to have the car, or cut of cars, leave the retarder at the predetermined optimum speed for cars in that respective weight classification. The release speed can be adjusted according to local conditions and as required on account of low temperatures, snow and adverse winds. This adjustment is not made by the retarder operator, but by a signal department employee when conditions warrant.

On the line on the control panel representing the track lead to each of the two groups there is a special toggle-type lever, which can be thrown by the tower operator to modify the release speed of the corresponding group retarder. For example, for a "hard rolling" car he can modify the control to release the car at above normal speed. Or if a classification track is nearly filled so that the car has only a short distance to go, he can modify the control to release the car at less than normal speed. The automatic system includes allowances for reductions in speeds on curves in turnouts.

Manual Control of Switches

In addition to the automatic switching control described above, the control machine in the tower includes manual control of switches, which is primarily for use when making trimmer moves or when testing the operation at switches. This manual control includes rotary type levers which are placed on the tower control panel at locations corresponding to the respective switches. When automatic switching is in effect, these levers are set to the automatic position, which is with the lever handle off of the lines representing tracks. During manual control, the lever for a switch is moved to place it over the line representing the track to which the route is to apply. The position of the switch is repeated by a small opal indicator lamp in the diverging track line just beyond the lever. In the face of the barrel of each switch lever there is a red lamp which is lighted when the corresponding switch detector track circuit is occupied.

This manual control of switches is not normally in use, the switches being controlled by the automatic switching system. However, the man at the control machine is responsible for watching the cars as they proceed to see that each cut is being routed to its proper classification track.

Power Switches

Each power switch is operated by a G.R.S. Model 6 high-speed electric switch machine, especially designed to operate a switch in 0.6 second. The machine is so constructed that if trailed through while trimming no damage will result to the machine, switch points or fittings. Each switch is equipped with General Electric electric switch heaters to melt snow. These heaters are the Calrod tube type operating on 440 volts a.c. and are rated at 200 watts per foot, with a total of about 5.8 kilowatts per switch.

The car retarders are operated by 265 volts d.c., and the switch machines by 132 volts d.c. A diverter-pole motor-generator, rated at 265 volts, 15 kw. output, is normally in operation to provide a floating charge across a set of 120 cells of 240-a.h. Exide lead storage battery. The 265-volt feed of the car retarders is across this bat-

TALK-BACK loudspeakers are on short pipe masts at numerous strategic locations throughout the yard.

OPERATOR in Westgate tower uses this telephone controlled Dictaphone machine to make record of car numbers.

CLERK in yard office operates keyboard Teletype to typewrite switch list which is simultaneously reproduced in Teletype printers in control offices and elsewhere.

tery. Feed for the switch machines at 132 volts is in groups; each group is across half of the battery.

If the commercial a.c. power fails, thus causing the motor-generator to stop, the retarders and switches can be operated from the 240-a.h. battery. Also, in case of a failure of the commercial a.c. power, a 5-kva. d.c.-a.c. motor-generator automatically starts (running from the 120-cell storage battery) to produce 120-volt a.c. to feed the track circuits, indication lamps on the control panel, etc. The circuits for the power switch machines, retarders and signals, are in buried cable which was laid in trenches a minimum of 30 in. deep. This insulated wire and cable was made by the Okonite Company. Wire connections to terminals are made with Aircraft-Marine solderless terminals.

Operation of the Yard as a Whole

A former bottleneck in getting trains in and out of the west end of Kirk yard was eliminated by relocating the ends of two main tracks from South Chicago; and two main tracks from Joliet; the single track from Stockton and the single track from Pine yard, so that they all converge into four main tracks in a new interlocking known as Westgate, at the extreme west end of the yards as shown on the diagrammatic plan. Incoming as well as outgoing trains pass through this Westgate interlocking. The North yard is a receiving yard for traffic from the South Chicago Works of the U. S. Steel Corporation, as well as from industries along two EJ&E main lines from South Chicago southward to Kirk yard.

The South yard is a receiving yard used primarily by incoming road trains from Griffith and beyond. The West yard is used principally as an outbound yard, but it is used also for traffic from and to nearby connections, such as the Wabash, the B&O, the Pennsylvania, and NYC. The East yard also is used for cars to and from nearby industries, particularly those east of Kirk yard. It is used also as a "hold" yard.

Cars to be classified are pulled eastward to a point east of the hump, where there are two long tracks. From one or the other of these tracks, cars are pushed west to a single lead which extends westward up a 3 per cent grade to the crest of the hump. On this ascending grade, there are two car inspection pits (one on each side of the track), and a dragging equipment detector, which sounds an alarm if defective equipment is hanging from a car.

The pushing of cars up to the hump is directed by a color-light signal at the crest of the hump, the aspects of which are repeated by four signals along the track in approach, so that the engineman always has a signal in view.

Buildings and Offices

The assistant general superintendent, superintendent, and agent have offices in a previously existing building, known as the general office, at the east end of the yard about 300 ft. east of the hump. The general yardmaster, assistant general yardmaster, and some of the yard clerks are in the yard office on the second floor of a new brick building 40 ft. by 150 ft., just north of the hump. The assistant general yardmaster's office, in the southwest corner of this building, has a large glass-enclosed projection, so that he can see all operations at the east end of the yard. The 10 ft. by 10 ft. one-story building, known as the hump office, north of the track at the hump, includes the control panel for the automatic switching system, this panel being operated by the hump conductor. The retarder tower, located south of the yard opposite the main area of retarders, is several stories high, the floor of the operating room being 50 ft. above rail level.

At the departure end (west) of the classification yard, there is a new brick building, the upper floor of which is the office for the West End yardmaster. This man has charge of switching operations to remove cars from the

(*Continued on page 129*)

COMMUNICATIONS IN KIRK YARD

For all stages of operations in the EJ&E Kirk yard, direct voice-calling communications between persons involved is provided by separate systems of "intercoms," paging speakers and talk-back speakers.

Several different systems of yard paging and outdoor talk-back speakers are also included in this project. The control console in the operating room in the retarder control tower is connected to outdoor paging speakers and outdoor pedestal mounted talk-back speakers which are placed at strategic points in the yard.

The yardmaster at West End yard has control of two-way talk-back speakers on pedestals along switching leads and at other places where he can communicate with crews. At Westgate interlocking, the operator has control of paging speakers, and two-way talk-back speakers at strategic locations in the vicinity of that interlocking. The assistant general yardmaster has a console connected to several paging speakers and two-way speakers located in the vicinity of the hump. The general yardmaster has a monitoring unit with which he can listen in on all the various systems. In addition, there is "intercom" between all the key offices mentioned above.

The communications equipment on this project, furnished in complete packaged form by the R. W. Neil Company, included relays made by the C. P. Clare Company, and talk-back and paging speakers made by Jensen Radio Manufacturing Company. The bulk of the underground intercommunication and loud-speaker circuits are in Whitney-Blake, Teleseal, No. 14, twisted pair. The d.c. energy for operating the Teletype circuits is furnished from Fansteel rectifiers.

The signals, retarders, power switch facilities, and controls, as well as the communications systems in this yard, were planned and installed by EJ&E forces, under the general jurisdiction of the late F. G. Campbell, chief engineer, S. H. Shepley, chief engineer, in immediate charge of field construction, and W. K. Waltz, signal engineer. The construction of the signaling facilities was supervised by Arthur Jensen, signal supervisor, and the communications equipment including the pneumatic tube system, by W. E. Storey, chief lineman. The power switch machines, car retarders and special control systems were furnished by the General Railway Signal Company.

RESEARCH MADE IT POSSIBLE . . .

How D&RGW Uses Low-Cost Fuel

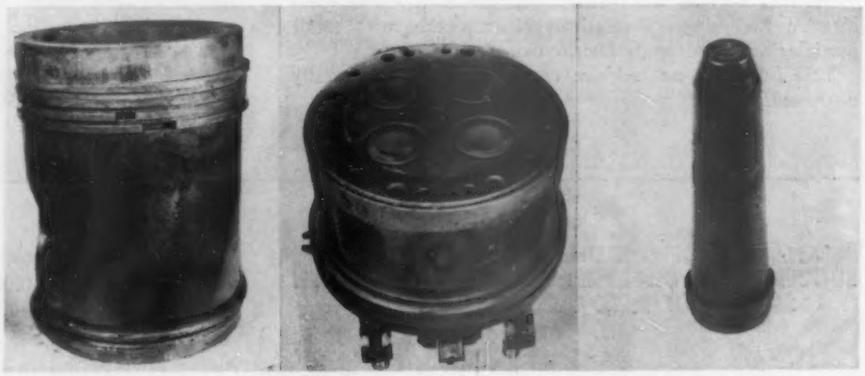
Material increase in current savings to about $20,000 a month anticipated as treated non-specification fuel is more widely used throughout the system

As a result of extensive fuel research during the last four years, the Denver & Rio Grande Western reports discovery of a new principle in internal engine combustion and its successful application, with attendant marked economies, (1) to unstable fuel mixtures not heretofore used in railroad diesel service; (2) to other fuels such as gasoline, jet and turbine fuels; and (3) to premium-specification diesel fuels which give trouble in road service.

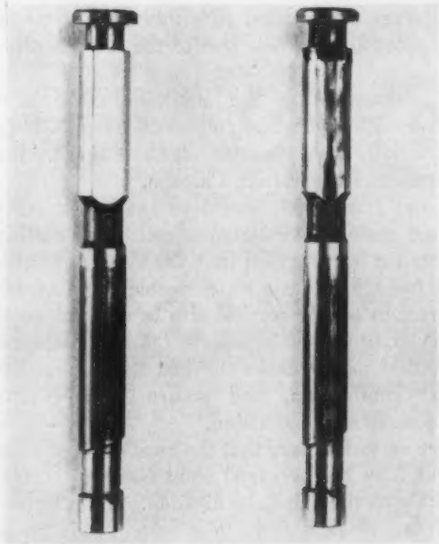
In brief, research with the electron microscope seems to prove that these fuels are not true solutions, but colloidal suspensions with constituent particles of variable size, which must be broken up and uniformly

Current diesel fuel tests, now being made on the Salt Lake division of the D&RGW, are rapidly being extended to the entire railroad in road and yard service. They are aimed at:

- **Successful use of lower-cost fuels of different blends**
- **Improvement in specification fuels**
- **More efficiency, with higher B.t.u. fuel**
- **Assurance of no adverse engine effects**
- **Prevention of any storage difficulties**
- **Widening of fuel supply sources**
- **Decreasing unit fuel costs**

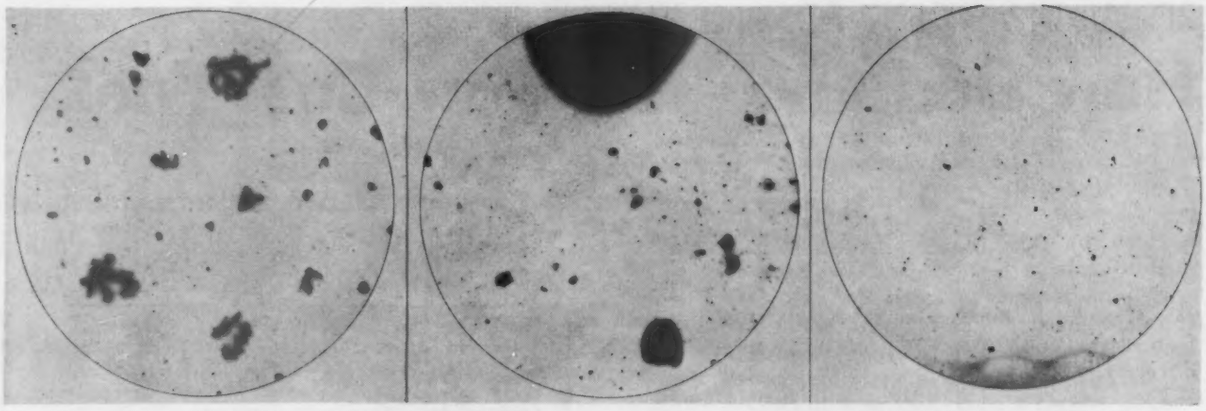


RELATIVELY CLEAN diesel engine parts after operating for 45 days on shale oil fuel treated with dispersant.



LACQUERING of injectors due to use of premium specification diesel fuel with unsatisfactory dispersancy pattern (left).

METHOD OF ADDING DISPERSANT to a tank car as diesel fuel is mixed at the refinery (right).



ELECTRON PHOTOMICROGRAPH (X 6,750) of typical catalytically cracked diesel fuel—(left) Fuel as received —(center) Deteriorated after two weeks storage—(right) Satisfactory dispersion with additive.

Six electron micrographs of various fuel combinations and fuels are illustrated. These photographs were made at 1,500 magnification on the electron microscope and represent three samples and an average of the field studied. Each photograph represents one six-hundreth of the field examined by the electron microscope and is enlarged to 6,750 magnification, one micron being shown by the scale.

An electron micrograph of a satisfactory well-dispersed diesel fuel, such as the D&RGW receives as a winter specification fuel, shows a relatively clear picture with small particles quite uniformly distributed.

This fuel does not require treatment as it is naturally dispersed.

In the first group of three micrographs, the one at the left is an unstable low-cost fuel typical of analysis *E* in the table. This fuel has not been used for railroad diesels before. After this fuel has been exposed to light for two weeks to simulate storage conditions, sludging and deterioration and large particle size result in structures as found in the center photograph of this group. By adding one quart of dispersant additive to each 1,000 gal. of fuel, the mixture can be stored under light and yet have the favorable structures shown in the photograph at the right. In service, this addition has prevented injector sticking as would be expected from unstable fuels and deposit troubles.

The structure of a typical premium specification high-cetane

ANALYSES OF FIVE UNSTABLE DIESEL FUELS SUCCESSFULLY DISPERSED BY THE D&RGW WITH SAVINGS OF ½ TO 4 CENTS A GALLON*

Type	A	B	C	D	E	D&RGW Winter Spec. Fuel
Gravity	29.4	35	36.7	34.7	30.5	36 min.
Flash point, deg. F.	176	175	220	160	175	150 min.
Pour point, deg. F.	—5	+15	+66	—10	—15	+10 max.
Viscosity at 100 deg. F. SSU	35.6	35.6	44.8	34.2	34.3	
Conradson carbon 10% bottoms, %	.13	.50	.10	.15	.28	.02 max.
Sulphur, per cent	1.23	.90	.12	.34	.48	.50 max.
Nitrogen, per cent	trace	.05	trace	trace	trace	trace
Cetane	34.3	45	60	43	35	50 min.
Initial boiling point, deg. F.	378	454	436	366	399	
50 per cent point, deg. F.	490	506	571	486	482	
End point, deg. F.	590	665	760	636	588	675
Aniline point	125.1	126.7	176.7	140.4	....	

*Fuels B, D & E already used. C is blend with specification fuel. A is test fuel to be used later.

distributed by a dispersant to assure efficient combustion and reliability in service.

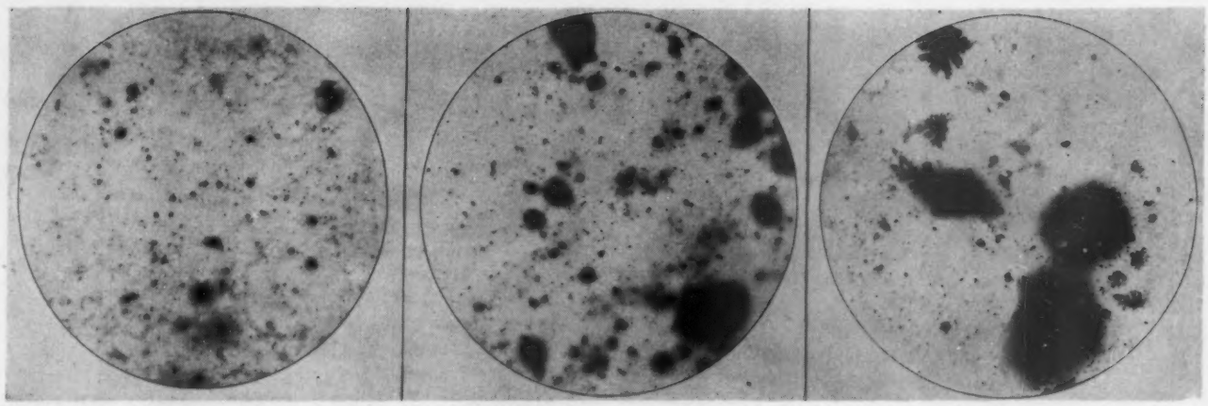
The D&RGW began its tests of diesel locomotive fuels, utilizing the electron microscope as a research tool, in the fall of 1949. These tests showed the practicability of burning shale diesel fuel with a relatively high percentage of sulphur (0.90 per cent by weight) and slightly lower cetane number (45.9) in a switching locomotive without adverse effects on engine performance or maintenance for a period of 45 days, or until all of the shale oil fuel supply was used. The lack of stability and heavy sludging in storage experienced with this oil was found to be directly related to particle size of the fuel constituents.

This was overcome by the addition of a dispersant additive (.05 per cent by volume of Nalco X-159) which was especially developed for oil shale fuel by the National Aluminate Corporation, Chicago.

Beginning early in 1953, extensive road tests were initiated using more conventional diesel fuels costing up to 1½ cents net less a gallon than the average specification diesel fuel. Such fuels were treated with an additive dispersant to reduce particle size to an average of one-tenth micron (one micron equals .0001 centimeters, or roughly .00004 in.) to make the fuel stable, promote more efficient combustion, and secure more B.t.u.'s through more complete combustion.

Results were so satisfactory that the road's use of these fuels since last May has averaged from 600,000 to 800,000 gal. monthly on the Salt Lake division. With further extension of use of such fuels to a system-wide basis, savings of about $20,000 a month are anticipated.

The fuels used in these tests consist of mixtures of unstable catalytically cracked and stable straight-run



UNSATISFACTORY DISPERSANCY patterns (X 6,750)—(left) Typical high-cetane premium diesel fuel—(center) High-cetane premium specification fuel—(right) Premium specification gasoline with unstable constituents.

diesel fuel, studied with the electron microscope because of reported service troubles, is shown at the left in the second group of three micrographs. This is a fuel showing high gum instability and unsatisfactory particle size, also serious injector sticking. Similarly, the center photograph is of a high-cetane premium specification diesel fuel with unsatisfactory particle size, giving service troubles, deposits, smoking, etc. Such fuels can be treated with dispersants so as to reduce the particle size to an average of one-tenth micron and prevent such difficulties. The more complete combustion largely prevents partially burned particles of fuel from contaminating the lubricating oil by working past rings and causing wear and deposit problems. Typical injector lacquering as a result of improper particle dispersion is shown in another illustration.

The studies of gasolines have also been of special interest in that the same type of instability, as shown by the electron microscope in type and particle size, has resulted in service trouble despite the fact that all standard regulations and specifications are met.

The right-hand micrograph in the second series shows a typical Ethyl gasoline which has given service trouble from deposits despite the fact that it passed all specifications and regulations satisfactorily and showed a low gum content. Such gasolines require similar additive conditioning given to diesel fuels.

---

diesel fuels. Dispersants are added at the refinery. Studies and service tests are now being made of other types of fuels which permit even greater savings, such fuels being selected because of instability and studied individually.

The railroad supplies dispersant to the refinery which stores it and takes the necessary amount from the stored drums, adding it to the tank car as the fuel stocks are being blended.

Analysis of five unstable types of diesel fuels, purchased by the D&RGW at savings of one-half to four cents a gallon, are shown in the accompanying table. Each of these fuels has been dispersed to satisfactory particle size for efficient combustion.

Good Engine Conditions

As with its other diesel power, the D&RGW has kept a close check on the mechanical condition of locomotives assigned to the Salt Lake division by making regular specified routine tests and spectrographic analyses to determine if wear metal is present in the crankcase oil.

No evidence of excessive wear conditions has been found since introduction of the treated diesel fuel.

The railroad stresses the fact that the tests described are by no means intended to "degrade" present specification diesel fuel. The purpose is simply to provide a study and means of improving such specification fuels as may be unsatisfactory and permit the use of unstable or other fuels available at lower cost but not heretofore successfully burned in diesel locomotives.

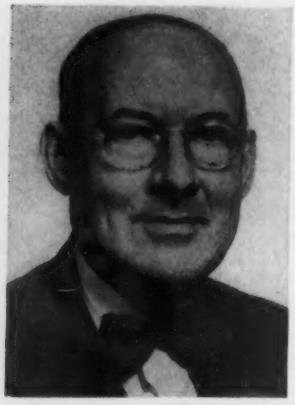
Because of the widespread use of thermal and catalytically cracked stocks blended with virgin or straight-run stocks for diesel engines in stationary and mobile power service, many fuels now on the market are subject to instability, as evidenced by particle size variations and sludging tests.

To overcome this condition, D&RGW experience shows that fuel oil additives have been developed which stabilize the unstable blends or straight stocks and which in many cases can disperse already-formed sludges. This is important since, dependent upon the stability of the constituents, sludge formation may start immediately after blending, production or only after a period of storage or heating. Since diesel fuel oils vary widely in composition, additives which are based on controlling one mechanism of instability will not necessarily work on another.

Fuel cleanliness is also an important factor, since the presence of suspended matter may cause serious difficulties during storage, pumping and atomization in burners or injectors. The railroad has found only one answer to this problem and that is for both the oil supply company and the railroad to keep all storage and filtration equipment as clean as possible, thus minimizing dirt, scale, rust and other contaminants which are most difficult to keep out of the fuel system.

PRESIDENT—John N. Lind, general traffic manager, National Supply Company, Pittsburgh, Pa.

SECRETARY—T. C. Burwell, vice-president—traffic, A. E. Staley Manufacturing Company, Decatur, Ill.



RETIRING AS PRESIDENT.—Arthur P. Little, general traffic manager, Dennison Manufacturing Company.

AS SHIPPERS MEET . . .

Car Supply Causes Concern

Government, shipper and railroad spokesmen cite views at National Shippers Advisory Board meeting at Omaha

The nation's freight car supply, as geared to both defense mobilization and general civilian needs, proved to be the number one topic for members of the National Association of Shippers Advisory Boards during their meeting at Omaha, Neb., October 6, 7 and 8. Government, shipper and railroad spokesmen each aired their views. In one proposed solution to the problem, government control of railroads was termed a very likely outcome.

The government viewpoint was presented by James K. Knudson, defense transportation administrator and member of the Interstate Commerce Commission. The railroads' case was upheld by William T. Faricy, president of the Association of American Railroads, and Arthur H. Gass, chairman of the A.A.R.'s Car Service Division. (A brief account of the talks by Messrs. Knudson and Faricy appeared in the October 12 issue of *Railway Age*, page 35.)

All agreed that the car building quota set in 1950, calling for 1,850,000 cars, had not been reached by the stipulated date of July 1953, and all doubted strongly that the quota would be reached by the extended date of July 1954. It was generally conceded, however, that the car repair program had been stepped up and that terminal delays are being reduced, both factors aiding in the national car supply picture.

"The defense mobilization effort requires continued pressure in the lagging freight car building program," Mr. Knudson said at a joint luncheon session at which members of the Omaha Traffic Club were also present. "In view of declarations by the highest officials of government indicating the potential danger of attack from without, and the need to meet the requirements of any degree of stepped-up partial mobilization, it is essential that the railroads meet orders for freight cars until they have on hand a minimum of 1,850,000 cars."

He predicted that until this number is reached—come peace or war—in view of the increase in population and the continuing increase in traffic, there will be periodic car shortages which will work a hardship on the country's shippers.

"The present shortage is approximately 80,000 cars," stated the commissioner, "in spite of the fact that the railroads have received, to date, from the federal government accelerated tax amortization benefits in the amount of almost $4 billion. Of this amount $1,791,000,000 has been for freight cars."

Compulsion

This incentive, according to Mr. Knudson, evidently has not been sufficient to produce the desired number of cars, and he therefore is advocating institution of a formula by which the railroads can voluntarily discover which roads are now in short supply. They should then take steps to bring such roads into compliance with their common law obligations to have sufficient equipment to supply shippers using their services. He stated further that, if voluntary efforts on the part of the railroads do not produce the desired results, he will not hesitate to recommend that the I.C.C. use its power, under law, to direct the procrastinating roads in car purchases. He added, however, the proviso: If the roads are financially able to purchase the needed cars.

As a last resort, Mr. Knudson said, Congress could be asked to vote the needed funds to build necessary cars, if the railroads failed to do so. This "*would not*

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1939 - Crowned rollers which increased capacity.

1943 - Assisted Railroads in developing "sealed-grease lubrication."

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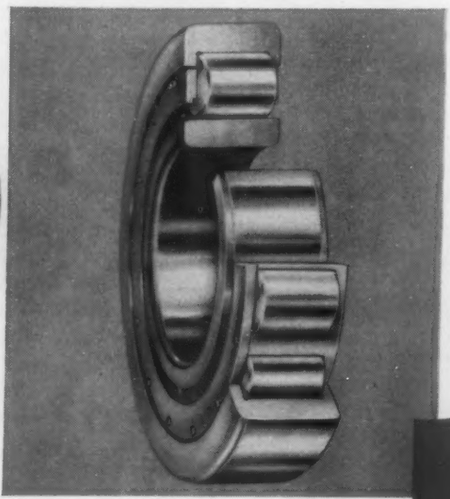
1952 - Longer life M-2 Cage, roller centered, while retaining all previous improvements. Sealed grease lubrication runs up to 500,000 miles without attention.

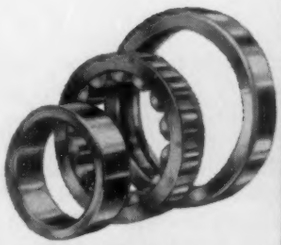
Here is today's SKF Pinion End Cylindrical Roller Bearing



Crowned rollers assure maximum capacity in minimum space.

Roller riding cage is easier to lubricate.

SKF's new M-2 Cage provides easy disassembly and inspection of all bearing surfaces.



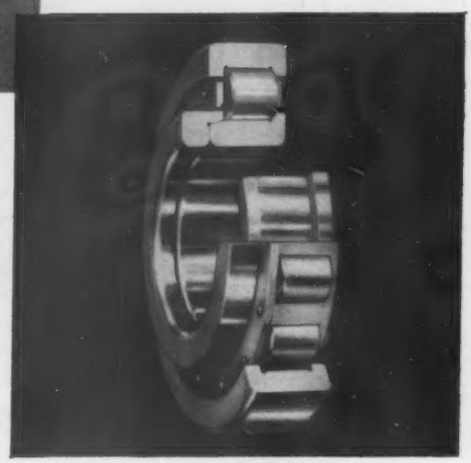
***SKF**'S NEW M-2 CAGE—USED IN BOTH PINION AND COMMUTATOR END BEARINGS—Here's how easy it is to disassemble for inspection. Just slide out the inner ring. You can then move the rollers out of the inner ring groove, and rollers and M-2 Cage slide right out. Replacement is just as easy.*

Here is today's SKF Commutator End Traction Motor Bearing

Crowned Rollers.

Positively stabilizes the armature and holds it in its proper position in the motor frame.

Has M-2 Roller Riding Cage—same as Pinion End Bearing—for easy disassembly and inspection.



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TRACTION MOTOR BEARINGS

only border on government control but would be stepping into it." Under such production the I.C.C. could set up a leasing arrangement to the railroads for such cars. But the government would be in business regardless —a state of affairs he said should be avoided at all costs, for "I am a firm believer that the federal government should stay out of private business."

When asked if his suggested solution was an ultimatum, he replied, "No, but it is an urgent request."

In closing he told those attending the luncheon that he felt "the railroad systems are in better condition than they have ever been in this country and that if given a reasonable time to arrange their financial affairs, free from labor disputes which drain away needed reserves, they would be able to become one of the healthier industrial organizations of the country."

Mr. Faricy Replies

Following Mr. Knudson on the luncheon program, Mr. Faricy agreed with the goal as stated, but said there was a certain area of conflict between his views and those of Mr. Knudson and that it came in "timing." "I am convinced that we are on the correct path to solve the freight car shortage, but that the deadline to reach the goal should be stretched out a little."

He agreed that the shortage "runs somewhere between 76,000 and 80,000 cars" and should be given immediate attention so the supply will reach the figure requested by the government.

Mr. Faricy doubted the authority of the I.C.C. to pass compliance legislation as suggested by Mr. Knudson, and added that, if it were enacted, it would be without precedent.

"One important factor to the railroads is whether the I.C.C. will allow freight rates to continue at present levels so the railroads will be able to pay for a sizable number of new cars," he said. "The 15 per cent rate increase [Ex Parte 175] is due to expire in December 1955, unless the I.C.C. votes an extension. Railroads pay for any sizable car order on the installment plan over a 10- to 15-year period. Not knowing what the rates are going to be beyond a relatively short period of time, railroads are reluctant to order new cars that they will have to pay for in the future—specifically beyond that date of December 1955."

But he pointed out that railroads are continuing to build cars—even if less than the quota—to meet needs which can be foreseen and they are making steady progress toward the 1950 goal. As of September 1 a net gain in ownership of over 49,000 cars had been realized, he pointed out.

Later he told the audience that it was hard to understand why the railroads should be expected to meet the unpredictable demands of defense, if in ordinary times they are to be treated as "standby means of transportation."

And he went on, "regardless of how much the railroads may be looked upon as stand-by transportation, and regardless of how much they may be taken for granted in ordinary times, past experience has proved that railroads, in an emergency, are the very foundation of defense because of their massive carrying capacity."

Commenting further on the car supply situation, Mr. Gass told the shipper-railroad audience that "Our car shortage figures show a big improvement over the past few years. In 1951 our weekly car shortage ran as high as 40,000 cars per week; this past year the weekly average has been only 5,000." He also pointed out that in 1944—the year of peak tonnage—railroads hauled 737 billion ton-miles of freight, in comparison to only 615 billion ton-miles in 1952.

In reporting on the national transportation picture, Mr. Gass informed board members that "there is no sign of return to a depression. Production figures for 1952 show an increase of 15 per cent for all American industry over 1950."

In his report as retiring president of the N.A.S.A.B., Arthur P. Little, general traffic manager of the Dennison Manufacturing Company, pointed to the action of the A.A.R. in setting up a special l.c.l. research committee, as requested by the 13 advisory boards, as the "outstanding accomplishment of the year."

He gave the railroads a pat on the back, too, in stating, "the railroads have definitely taken off their coats, in attacking the freight loss and damage problem, and are doing a splendid job."

Lind Pays Tribute

Newly-elected president of the N.A.S.A.B., John L. Lind, general traffic manager for the National Supply Company, paid tribute to the railroads, when he said, "Some shipper boards have reported considerable improvement in rail line-hauls while others have stated that they have no complaint at all on rail services." He observed that these reports are "quite different from those given by the same committees several years ago."

He summed up the shippers' view of the national freight car supply picture by saying: "No boards have reported any serious shortages this year—though some have experienced spot shortages, particularly regarding some types of special equipment."

H. E. Chapman, traffic manager of S. S. Kresge Company, and chairman of the association's National Management Committee, said the 1952 campaign to reduce loss and damage reached more shippers and carrier employees than ever before. He reported that 357 shippers' meetings attracted an attendance of 34,992 people, while 3,147 meetings held by railroads and the Railway Express Agency attracted an additional 99,035.

His committee also announced that it will soon be ready to distribute consignee damage reports to all members as a step in (1) curbing unlocated damage reports now so prevalent, and (2) ascertaining and pinpointing damage causes.

By resolution board members:

- Requested the A.A.R. to appoint a special research committee to study the clean car problem.
- Added a clause to a resolution passed several years ago on l.c.l. service requesting "all railroad freight stations, including transfer points where merchandise house cars and overhead trap cars require reworking, be operated during a sufficient amount of time to accord good over-the-road and terminal service to highest rated and highest valued traffic as is accorded carload shipments."

The association will hold its next annual meeting at Louisville, Ky., at a time to be designated at a later date by its officers.

"RECENTLY AS MANY AS 50 PER CENT OF A CUT OF CARS WERE TURNED BACK*..."

(Southeast Shippers Advisory Board, 12-11-52)

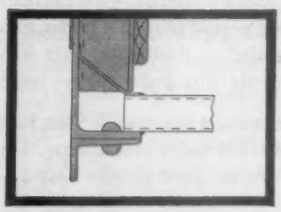
***Due to the poor condition of the floors which could not carry the lading.**

A common complaint today from shippers is *floors*—both gondola and boxcar—in *too poor* condition to carry their loads. A quick reading of any advisory board's proceedings will reveal the extent of the complaints: leaking floors in cars for carrying grain, boxcar floors broken through by fork lift trucks, gondola car floors battered to pieces by magnet and clamshell loading. As they turn back cars with substandard flooring, and as they pay damage claims arising from floor-damaged loads, the shippers—in their advisory board proceedings—continue to stress the drastic need for better floors.

NAILABLE STEEL FLOORING is the readily available solution to this costly, irksome shipper problem. Tough enough to handle the concentrated weight and abrasion of fork lift trucks in boxcars and provide maximum security for any load, it also makes gondolas versatile, double-duty cars—that can carry raw materials, such as scrap steel, into a shop, and go right out with a load of blocked finished freight.

Compare NAILABLE STEEL FLOORING with what you're *now* using. NAILABLE STEEL FLOORING, made from tough N-A-X HIGH-TENSILE STEEL, has every other flooring material beaten from every angle of safety, economy and shipper satisfaction. It's the flooring that can make *all* cars with flat floors, safe for today's requirements.

Cross-section view of Nailable Steel Flooring showing blocking detail.



Another development is the new N-S-F Metal Grain Strip to make boxcars leak- and vermin-proof.

GREAT LAKES STEEL CORPORATION
STEEL FLOOR DIVISION Ecorse, Detroit 29, Mich.

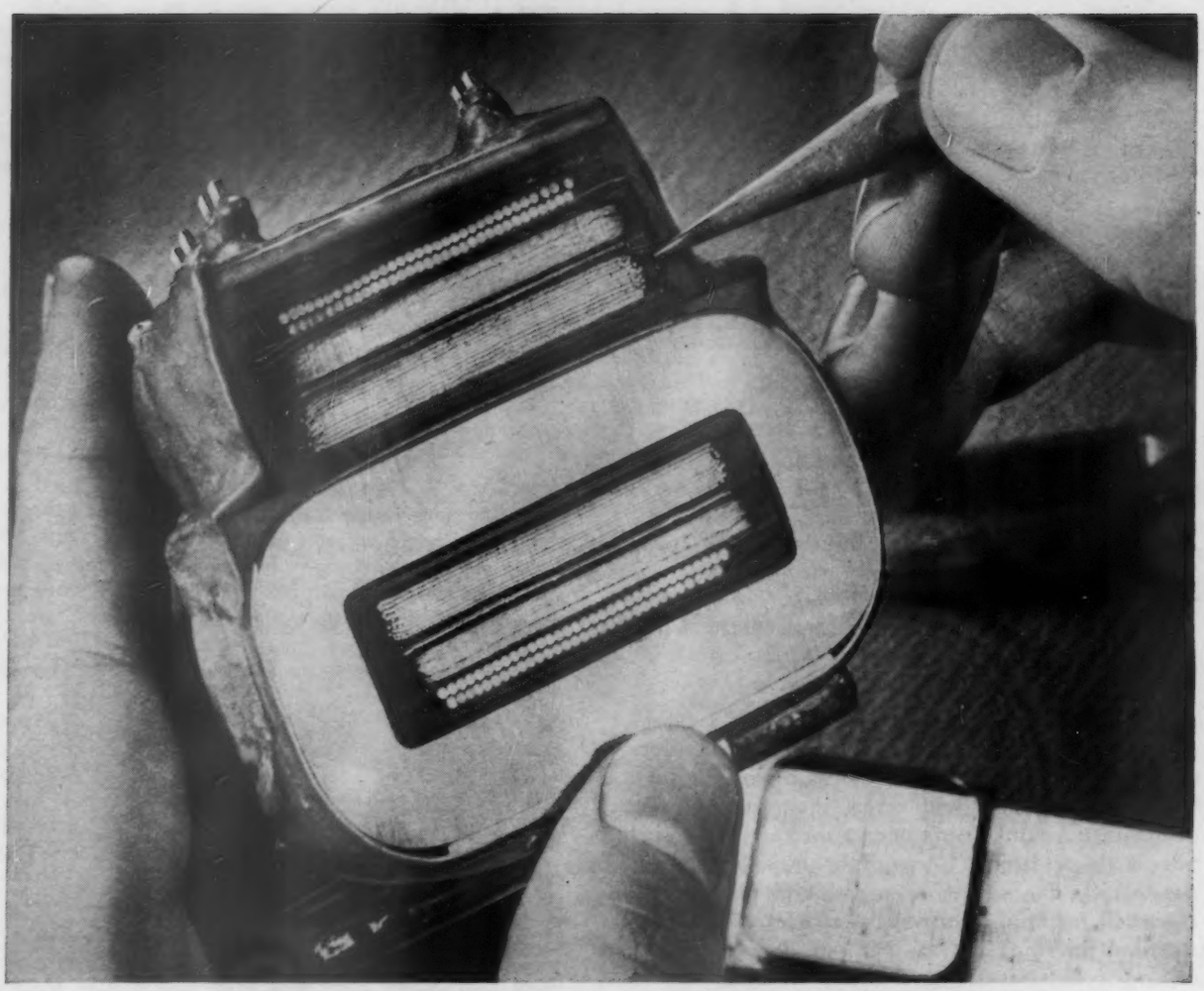
PRODUCER OF N-A-X HIGH-TENSILE STEEL

NATIONAL STEEL CORPORATION

Sales representatives in Chicago, Philadelphia, St. Louis, Atlanta, Omaha, Denver, San Francisco, Montreal and New York

53-SF-9
N-S-F for NAILABLE STEEL FLOORING
SAFER—STRONGER

PATENTS PENDING



FOSTERITE® ADDS LIFE AND DURABILITY TO RAILROAD RADIO TRANSFORMER

"Inside Story" Shows Westinghouse FE Railroad Radio Is Proved For Availability

Here is a typical Westinghouse FE Railroad Radio transformer, its carefully assembled core and coil cut in half. The pencil points to the reason why this coil has a longer, more efficient life. The reason is Fosterite – the exclusive Westinghouse impregnating plastic that fills under vacuum all openings in the coil . . . positively seals it off from adverse effects of moisture, dirt and corrosive fumes.

A second Fosterite treatment coats the outside also, helps the transformer core to resist corrosive atmosphere. Type FE Railroad Radio transformers have greater heat-dissipating ability, too . . . can be operated in higher ambient temperatures.

Westinghouse FE Railroad Radio – proved for availability–is the only radio designed specifically and exclusively for railroad service. Type FE equipment reflects the years of practical experience Westinghouse has had with railroad radio...is engineered to take rigorous in-service punishment and to supply reliable communications.

For complete end-to-end, train-to-train, and train-to-wayside communications for any and all railroad yard and mainline operations, examine Westinghouse Type FE Railroad Radio now. Write for full information to: Westinghouse Electric Corporation, Electronics Division, Communications Section, 2519 Wilkens Avenue, Baltimore 3, Maryland. Ask for our Railroad Radio booklet.

YOU CAN BE SURE...IF IT'S **Westinghouse**

J-02266

Load and unload more cars in less time with YALE trucks

Profitable railroading calls for profitable use of rolling stock... faster and less costly loading and unloading of freight cars at LCL docks, terminals and warehouses. And, YALE equipment is your best bet for lowering your materials handling costs.

There's almost no limit to the number of ways YALE industrial lift trucks speed loading and unloading of freight, baggage, mail and the countless sizes, shapes and weights of LCL shipments. Special attachments are available for handling loads with and without pallets or skids. Capacities range from 1,000 to 100,000 lbs. They're available with gas, diesel, electric or gas-electric power.

Your nearest YALE railroad representative can give you actual examples of how YALE trucks are saving time, money, and manpower in yards and terminals everywhere. Contact him or fill out and mail the coupon today.

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In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ontario, Canada

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YALE is a registered trade mark of The Yale & Towne Mfg. Co.

Gas and Electric Industrial Trucks • *Worksavers* • Hand Trucks • Hand and Electric Hoists • Pul-Lifts

G-E snowmelters give fast, flameless defense against snow-clogged switches

G-E snowmelters offer you fast, no-fuss protection against snow-clogged switches. Clamped directly under the head of the rail, they melt ice and snow quickly without any open flame to endanger personnel or property.

G-E snowmelters are left in place all year 'round, ready to go to work at a snap of the remote-control switch. Easy to maintain, G-E snowmelters require neither refueling nor constant attention.

Plan now for your snowmelting needs. Before you submit your 1954 budget, ask your nearest General Electric sales representative for full details on G-E snowmelting systems. General Electric Company, Schenectady 5, New York.

152-50

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YEARS OF ELECTRICAL PROGRESS

WESTERN UNION

Intrafax

Helps Railroads Do Business Better and Faster!

Dramatic, time-saving advance in modern intra-organization communications!

INTRAFAX is Western Union's great new contribution to improved railway ticket reservation handling. INTRAFAX makes possible *instantaneous* transmission of space reservation data between ticket sales and service office and branch office requesting such space. It also speeds communications between main and local branch offices and between departments. INTRAFAX can also expedite transactions among various offices in any city and its suburban area.

What is INTRAFAX? It is Western Union's revolutionary *facsimile* "intercom" system. Touch a button! INTRAFAX *instantly* transmits orders, messages, signatures, figures, charts or drawings! What's more, it flashes them with photographic accuracy—*exactly* as written, typed, printed or pictured!

What can it do for you? INTRAFAX saves *money* by cutting costly delivery time and copying delays. It saves *time* by speeding communications between floors and departments, between the main office and branches, or outlying offices. INTRAFAX gives a permanent record—in "photographic" form—of all transactions it handles.

You'll be delighted to find how easily, how efficiently INTRAFAX fits into *your* operations . . . to save valuable man-hours . . . improve passenger good will . . . prevent costly mistakes . . . improve communications in every way. INTRAFAX is a *new* way of doing *business*.

Get the facts from Western Union. Learn how INTRAFAX can improve the speed, efficiency, and accuracy of your "intercom" system. For complete information, call your nearest Western Union representative, or telegraph COLLECT to INTRAFAX DEPT., Western Union, 60 Hudson St., New York 13, N. Y. No cost or obligation.

INTRAFAX®. . . The Swift, Sure, Business "Intercom System"

INTRAFAX Pays For Itself By—

1. Elimination of errors that occur by forgetting or mistaking verbal messages.

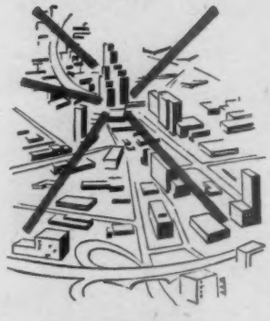
2. Leveling off peak loads on deliveries.

3. Direct saving in delivery time and expense.

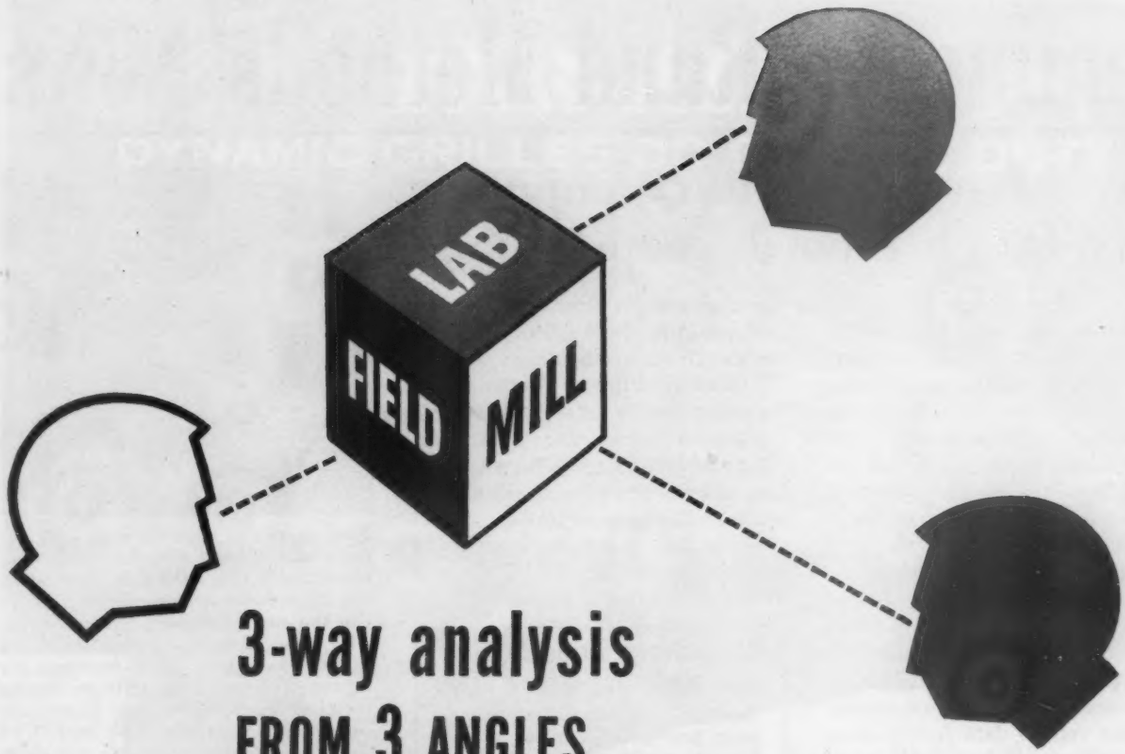
4. Permitting storage of records in remote, safe, inexpensive locations.

5. Transmitting confidential data instantly, by facsimile.

6. Simplicity of operation, requiring no special skill or technical training.



WESTERN UNION



3-way analysis FROM 3 ANGLES...

to gain 3 benefits...

● Republic's Three-Dimension Metallurgical Service begins with an examination of your production problem by one of our field metallurgists. Along with the mill and laboratory metallurgists, he makes a diagnosis. These three then pool their knowledge of alloy steels, heat-treatment and machining . . . and come up with a prescription that's suitable . . . efficient . . . and keeps within or below your cost limits. The result? Higher quality . . . greater output . . . and economy. If you can use these advantages, call in Republic:

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Other Republic Products include Carbon and Stainless Steels—Sheets, Strip, Plates, Pipe, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

Remington Rand Methods News

Here's how electronic computers solve tough record-keeping jobs

Here's a way to save *substantially* on record-keeping costs . . . to handle the most involved clerical jobs faster, and to get complex reports and analyses that are virtually impossible with any other method.

Electronic-computing systems are now ready to save you a great deal of time and money on such big everyday jobs as freight accounting, general ledger accounting, intra-company billing, statistical reports and forecasts, payroll and cost records, and pricing and rating studies.

Overall costs are reduced substantially, because an electronic system processes volume data faster, more economically, and with far more versatility than any other method.

In just one fast operation, the system computes, compares, and files . . . makes routine decisions according to instructions . . . and signals those exceptional conditions requiring management attention.

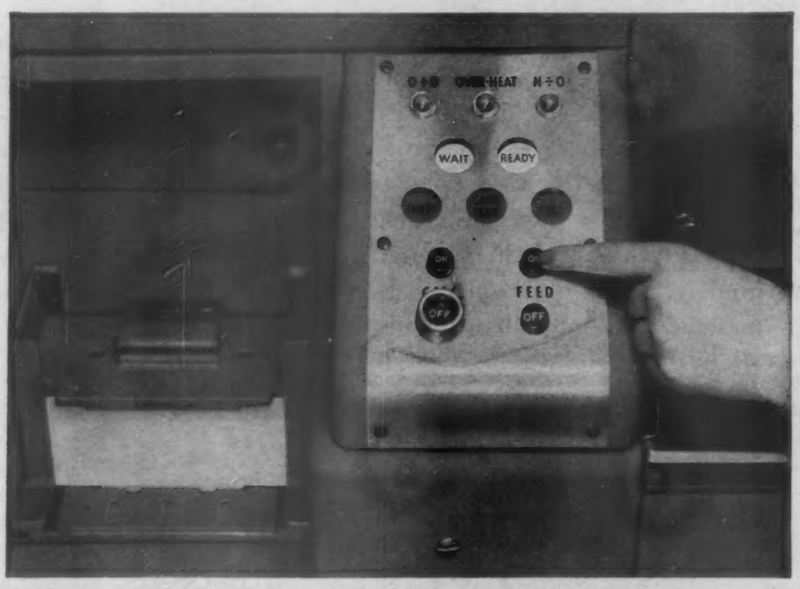
Remington Rand offers two distinct large-scale computing systems: UNIVAC All-Purpose System is designed primarily for accounting and business record keeping; ERA 1101, 1102, and 1103 General-Purpose Systems are designed for scientific and mathematical computations.

Write for the fully descriptive booklets **EL109** on UNIVAC, and **EL116** on the ERA #1103.

Management courses help you apply electronics to your needs

Here's a fast, convenient way to learn how to evaluate electronic-computing systems and how to apply their methods to your needs. Remington Rand offers training courses for both management and technical personnel.

Ask for the folders **X1441** and **EL118** which describe fully the courses available.



Ready—for punched-card miracles! **Here is a new kind of push-button efficiency—an electronic punched-card computer that solves complex problems of railroad record keeping and engineering computations in fractions of seconds. This revolutionary new computer sets new standards of speed and simplicity in punched-card procedures . . . eliminates many time-consuming operations on other machines . . . produces complete cards which are ready for immediate tabulation of records and reports. See how it is working right now saving time and money on freight accounting, tonnage and mileage statistics, freight-claim calculations, WH and RRR tax, savings bond deductions, balance due employees, and many other tasks. Get the details in case-history folder MC784, which is available on a 10-day loan basis.**

Now, same-day processing **of transaction data from distant sources! This economical, time-saving method gives you faster records and reports . . . saves you the cost of manual key-punching. The new Tape-to-Card Converter receives key-punching instructions via teletype tape, automatically producing punched cards ready for immediate processing of records. New flow chart shows mechanized methods for operating transportation, traffic, and accounting records. Circle SPTM4182.**

How to mechanize all your cost accounting records

Now you can completely mechanize your car movement records and reports . . . process Car-Movement Records daily to detect erroneous card references and missing records . . . post location information at the rate of 90 reports a minute (up to twenty-five movements posted on one Car Record card). This new method not only retains the daily audit advantages of the manually posted record but also provides the proven economy of punched-card machine methods. Ask for our methods file on *"Complete Mechanization of Car Accounting"*, available on 10-day loan basis.

Remington Rand

Manager, Transportation Records Dept.
Room 1303, 315 Fourth Ave., New York 10
Yes, I'd like the literature circled.
EL109 EL116 X1441 EL118
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"Complete Mechanization of Car Accounting"

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RR-4

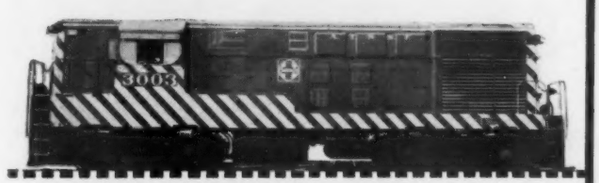
Profit-Building **IDEAS** For Business

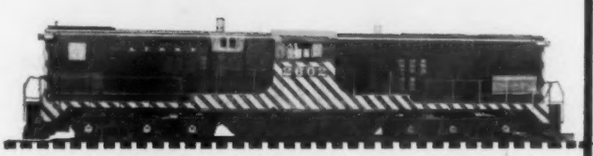
FAR-AIR*

DYNAMIC GRILLES DO DOUBLE DUTY

1. Reduce Dirt and Snow Load

2. Add Beauty to Diesel Equipment





When installed over air intake filters on Diesel Electric and Gas Turbine locomotives, FAR-AIR Dynamic Grilles effectively deflect snow, dirt and other foreign particles, yet allow unimpeded entrance of air. The higher the air velocity passing the grille face, the greater the effectiveness.

Available in stainless or plain steel, FAR-AIR Dynamic Grilles add to the appearance and service life of any locomotive. This new Grille can be supplied in practically any size and for a variety of applications.

Farr engineers are always available to discuss special requirements, always glad to assist in solving difficult filtration problems. Write today for information on FAR-AIR Dynamic Grilles and other FAR-AIR railroad equipment.

FAR-AIR FILTERS

"Better by Farr"

*Trade Mark Reg.

FARR COMPANY

Manufacturing Engineers

CHICAGO · LOS ANGELES · NEW YORK

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RDCs ADD UP ON THE B & O

So far, the B & O has received:

2RDC-1s, December 1950—Brunswick, Md., Washington, Baltimore

3RDC-1s, April, 1953—Pittsburgh—McKeesport—Versailles, Pa.

3RDC-1s, September, 1953—Washington—Baltimore

2RDC-2s, September, 1953—Washington—Baltimore

If, as the old saying goes, "The proof of the pudding is in the eating", RDC has done some pretty convincing proving for the Baltimore and Ohio.

In less than 2½ years, the 2 RDCs operating between Brunswick, Md., Washington and Baltimore have paid for themselves, as well as substantially improving the service which the B & O provides its patrons.

Could be RDC would do it on your railroad, too.

Doesn't cost you anything to find out. We'll lend your railroad an RDC, without fee, and be glad to rest the case for RDC on the contrast of operating and maintenance costs, and passenger patronage, between RDC and whatever you are operating now. The Budd Company, Philadelphia 15.

Budd

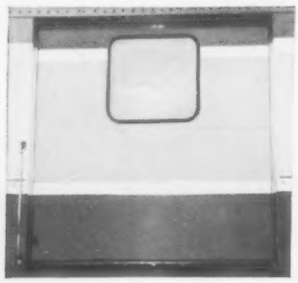
RDC BRINGS THEM BACK TO THE RAILS

MET-L-WOOD DOORS

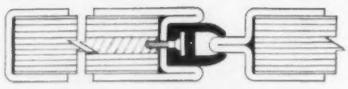
METAL BONDED TO PLYWOOD

★ LIGHT... TOUGH... DURABLE
★ NO THROUGH-BOLTS
NO WARPING
★ NO TWISTING
NO SWELLING

BAGGAGE AND POSTAL CAR DOORS



Completely weatherproof Met-L-Wood doors effectively prevent internal rust and rot... and their tough, smooth surfaces stay new-looking for years. Stainless steel channels along bottom edges of sliding doors are rustproof... virtually wearproof. All-rubber window sash installed or removed in minutes... rattle-proof... water- and weatherproof. Available in full width and split types ... sizes to meet all needs.

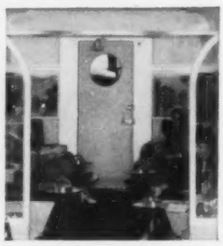


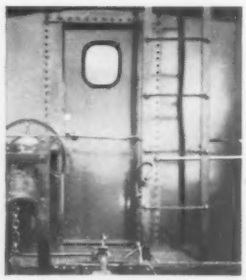
Exclusive Split Door Seal

Drawing above shows simple Met-L-Wood Split Door Seal which assures weather- and watertightness for years of continual use. Seal also provides effective cushion when closing split doors.

PASSENGER CAR END, VESTIBULE, INTERIOR DOORS

Sound-deadening, insulating, vibration-damping Met-L-Wood doors for passenger cars add to service life, cut deadweight . . . Combine modern, clean-line beauty with great strength and durability. Furnished for manual or automatic operation, with or without hardware assembly. Tapping plates for hardware are built into doors . . . invisible additions to strength and trouble-free service life. Sizes and types to fit all requirements . . . exact dimensions insure quick assembly and perfect fit. Door thicknesses from ½" up, as required.





CABOOSE DOORS

Met-L-Wood caboose doors are built to last the life of the caboose—and to give trouble-free service the whole time. Weather-proof, warp-proof, rot-proof doors can be provided with or without stationary windows in all-rubber sash or with standard drop sash. Available with or without hardware. In all sizes to exactly meet specifications.

DIESEL LOCOMOTIVE DOORS

Widely used by builders on new locomotives, Met-L-Wood doors guarantee trouble-free operation of end and interior doors on diesel road locomotives and cab doors for diesel switchers. Furnished to exact dimensions, with or without windows; either with hardware installed, or with tapping plates placed for hardware assembly on the job.

Write for this Bulletin

Met-L-Wood Bulletin 520 gives the complete, illustrated story on Met-L-Wood doors for railroad uses ... shows construction details, describes standard and special types and sizes. Your copy sent free upon request—write for it today.

MET-L-WOOD
CORPORATION

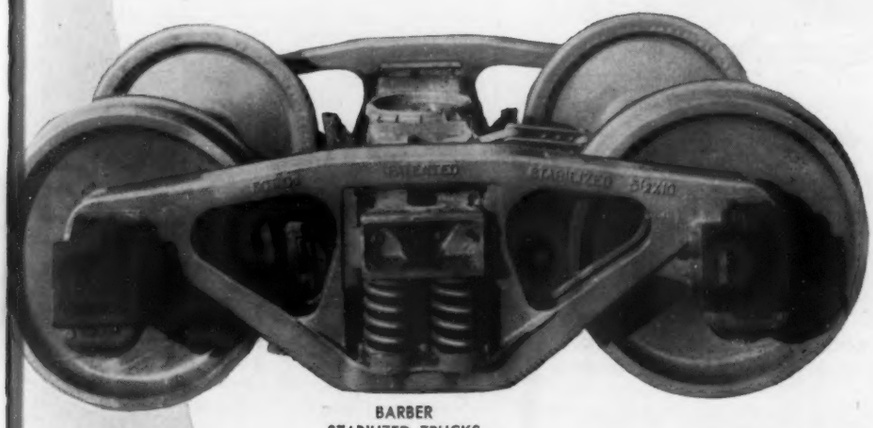
6755 W. 65th Street
Chicago 38, Illinois

MET-L-WOOD • *STRONG... LIGHT... Smooth Finish... Sound Deadening... Fire-Resisting... Insulating*

FREIGHT CAR MASTERPIECES

High Speed Trucks

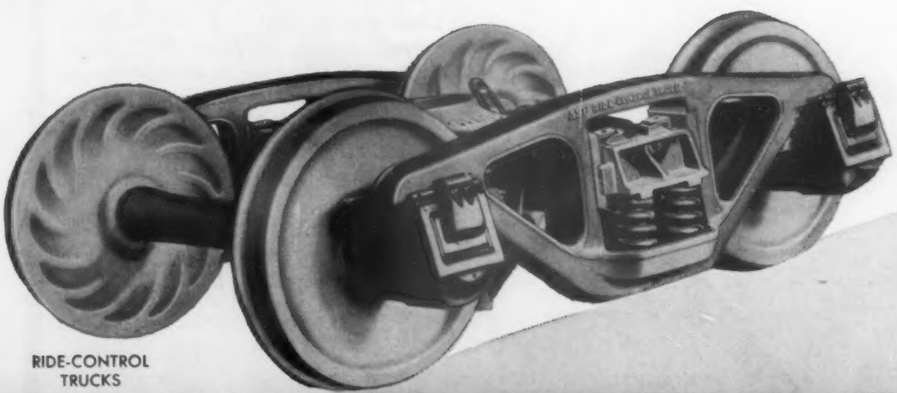
SCULLIN TRUCKS



BARBER STABILIZED TRUCKS

SCULLIN TRUCKS

Truck Side Frames and Truck Bolsters Produced by Scullin Steel Co.



RIDE-CONTROL TRUCKS

STEEL CASTINGS MANUFACTURER

NEW YORK
CHICAGO
BALTIMORE
RICHMOND, VA

SCULLIN STEEL CO.

SAINT LOUIS 10, MISSOURI

New Facilities

(*Continued from page* 18)
building some 40 feet by 100 feet, new platforms and a platform canopy. A general contract for the building has been awarded to R. R. Kelly, Tacoma. Housing a waiting room (designed and furnished for a "club-like" atmosphere); ticket office; women's lounge; washroom facilities; baggoge room, and welfare facilities for employees, the building will be of masonry construction with a red brick exterior and pastel ceramic glazed tile interiors.

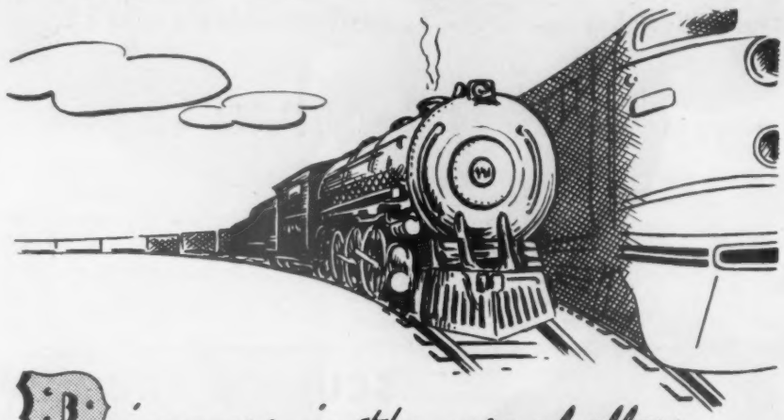
The design of the building calls for a 32-ft. masonry pylon carrying two stainless steel illuminated signs reading "The Milwaukee Road" to identify the location of the station to street traffic.

Missouri Pacific.—An industrial lead and team track is being built at Granite Park, Little Rock, Ark. Grading work is being performed by the McGeorge Construction Company of Pine Bluff and the balance of the work by company forces. The project is estimated to cost about $150,000. At Columbia, La., 3,157 feet of main line trackage is being relocated at a cost of approximately $57,600. Grading work is being undertaken by Linwood Smith, of Lake Village, Ark. A new combination freight house and warehouse is being built by company forces at Concordia, Kan. The work includes construction of a new open platform and rearrangement of trackage. It will cost about $56,000.

Texas & New Orleans.—Division 4 of the I.C.C. has denied this road's application for authority to construct a 5.5-mile extension to its rail lines in Milam county, Tex. The segment would have connected the T&NO with the Rockdale, Sandow & Southern, and it would have permitted the T&NO to participate in traffic to and from a new plant of the Aluminum Company of America at Sandow, Tex.

At present, the only trunk-line connection of the RS&S is the International-Great Northern, and the I-GN opposed the proposed T&NO extension. The I-GN, a part of the Missouri Pacific system, said traffic from the $100,000,000 Alcoa plant is "sorely needed," and Division 4 found the record "convincing" that facilities afforded by Missouri Pacific are adequate to meet traffic requirements of the plant. Total volume of traffic to and from the plant is expected to be about 6,400 carloads annually.

Texas & Pacific.—Alterations to the 23-stall enginehouse at Big Spring, Tex., now under way, will result in 10 stalls being remodeled for diesel locomotive servicing, and retirement of the remaining 13 stalls and trackage.



Pioneers in the use of alloy steels in railroad tools!

HACK DEVIL
RAILROAD ADZ

SLUG DEVIL
DOUBLE FACE
BLACKSMITH SLEDGE

CUT DEVIL
SLIM PATTERN
TRACK CHISEL

Since 1922 Warren Tool Corporation has been perfecting railroad track tools . . . to give them durability and long life.

Warren Tool's DEVIL line of tools are forged from alloy steel. This gives them a toughness that is a match for the rugged usage they usually receive. The DEVIL line is still being improved through manufacturing methods and physical tests . . . and will continue to keep pace with the ever-changing trends of railway maintenance.

When you think of railroad tools, think of the pioneers in the use of alloy steel . . . specify DEVIL tools.

WARREN TOOL CORPORATION

Manufacturers of Warren-Teed and Devil Railway Track Tools

GENERAL OFFICES . . . Warren, Ohio

EXPORT DIVISION . . . 30 Church St., New York 7, N. Y.

Securities

Application

SEABOARD AIR LINE.—To assume liability for $4,350,000 of series N equipment trust certificates to finance in part 900 freight cars costing an estimated $5,774,930.

	Description and Builder	Estimated Unit Cost
200	70-ton hopper cars (Bethlehem Steel Company)	$6,449
300	50-ton woodrack cars (Bethlehem)	5,540
400	70-ton covered hopper cars (American Car & Foundry Co.)	7,058

The certificates, dated November 15, would mature in 30 semiannual installments of $145,000 each, beginning May 15, 1954. They would be sold by competitive bidding, with the interest rate to be set by such bids.

Security Price Averages

	Oct. 13	Prev. Week	Last Year
Average price of 20 representative railway stocks	57.85	56.88	62.96
Average price of 20 representative railway bonds	90.40	89.95	92.43

Dividends Declared

MONTGOMERY & ERIE.—17½¢, semiannual, payable November 10 to holders of record November 2.

NORTHERN OF NEW HAMPSHIRE.—$1.50, quarterly, payable October 31 to holders of record October 15.
WESTERN PACIFIC.—75¢, quarterly, payable November 16 to holders of record November 2.

Financial

Chicago, Burlington & Quincy.—*Trackage Rights.*—The I.C.C. has approved this road's acquisition of trackage rights over 18.2 miles of the Chicago, Rock Island & Pacific between Almena, Kans., and Dellvale. The Burlington will abandon 18.1 miles of its own trackage between Almena and Oronoque, and will construct short connecting tracks at Almena and Dellvale in order to reach the Rock Island trackage.

Abandonment of its own line, the Burlington estimates, will save $213,700 in rehabilitation costs. Meanwhile, cost of the two crossover tracks is estimated at $139,758. The trackage agreement with the Rock Island will remain in effect "so long as both parties continue to operate between Almena and Dellvale."

Railway Officers

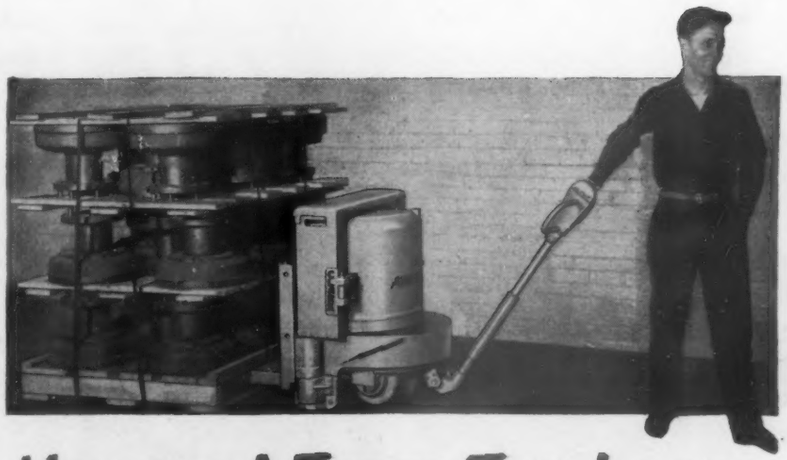
EXECUTIVE

As reported in *Railway Age* September 28, **D. S. Thomson** has been appointed to the newly created post of vice-president, operation and maintenance, of the CANADIAN PACIFIC at Montreal; **Guy N. Curley** succeeds Mr. Thomson as vice-president, Prairie region, at Winnipeg. Mr. Thomson,

D. S. Thomson

born at Cornwall, Ont., joined the CPR as messenger at Angus shops in Montreal before his 14th birthday. After serving as general superintendent, assistant general manager and general manager at Toronto, he became vice-

(*Continued on page* 106)



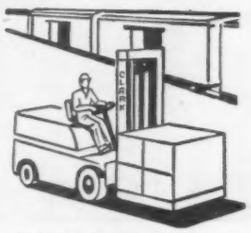
HANDLE A THREE-TON LOAD
With One Hand In Your Pocket...
Use CLARK *POWRWORKERS!*

CAN'T YOU JUST PICTURE THIS MAN trying to pull this load with an old-fashioned manual hand truck! It's a cinch he wouldn't have a smile on his face—there'd be sweat and strain, because those transmission housings weigh pretty near three tons!

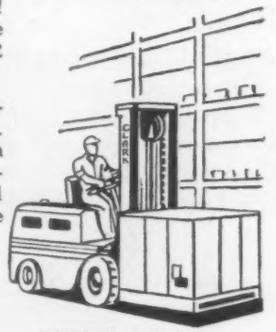
As a matter of fact, his boss is even happier. That POWRWORKER pallet truck has taken the muscle work out of the job, turned a tired worker into the smiling chap you see here. Furthermore, this employee is now doing twice the work he accomplished manually. No labor problem here! And the boss gets more effective use of his storage space, because the compact little POWRWORKER thrives on narrow aisles and low-load floors.

Not to mention the fact that the POWRWORKER is tailor-made for tight budgets. Big-truck benefits at small-truck cost — which means that nobody need deny himself the money-saving advantages of mechanized handling. Pound for pound, dollar for dollar, you can't beat the value in CLARK'S POWRWORKER Line.

Get the facts from your nearby CLARK Dealer (look under "Trucks Industrial", in the Yellow Pages of your phone book) or use the coupon below.

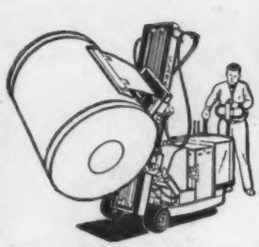


CLARK Electric Powered Fork Trucks: Capacities from 1000 to 7000 lb.



CLARK Gas Powered Fork Trucks: Capacities from 1000 to 15,000 lb.

1903 1953 FIRST FIFTY YEARS CLARK EQUIPMENT



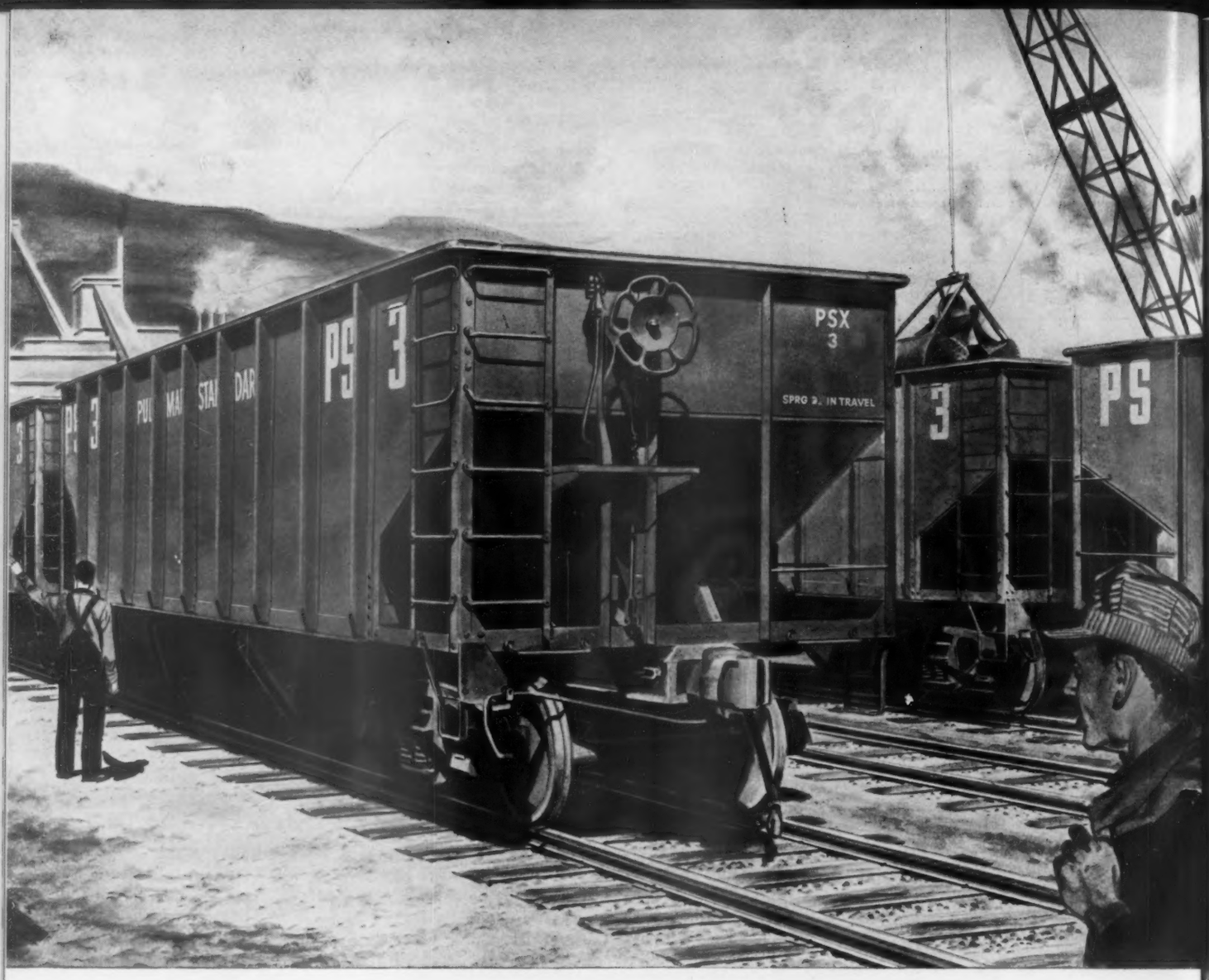
CLARK Attachments: 22 basic models

CLARK ELECTRIC, GAS, DIESEL, L.P. GAS FORK TRUCKS
AND POWERED HAND TRUCKS · INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION · CLARK EQUIPMENT COMPANY · BATTLE CREEK 24, MICHIGAN
Please send: ☐ POWRWORKER literature ☐ Have representative call ☐ Material Handling News

Name_____
Firm Name_____
Address_____
City_____ Zone_____ State_____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS



THE PS-3 HOPPER CAR

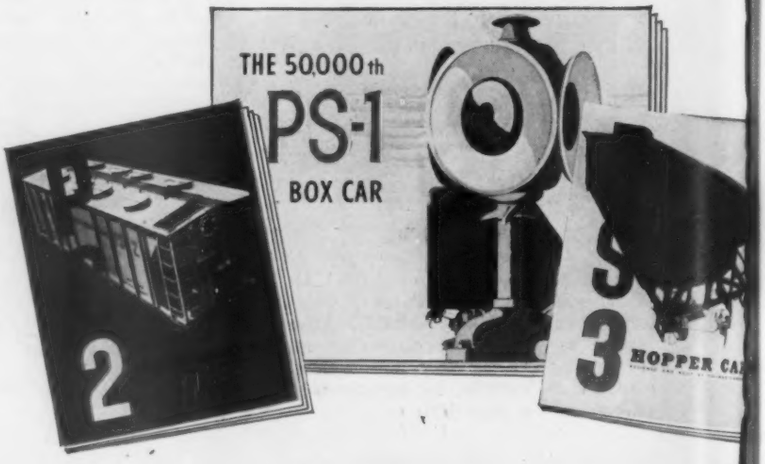
In the development of the PS-3, three important objectives dictated welded construction. They were, to provide: (1) maximum strength at all vital points, (2) maximum corrosion resistance and (3) smooth interiors for speedy unloading.

The PS-3 Hopper Car incorporates proven advantages. Virtually every type of hopper car in service today was studied. The effects of current handling practices were prime considerations in its design.

All of the components of the PS-3 are designed and constructed to work together as a unit to produce balanced strength throughout the car.

NEW BOOKLETS

Anyone concerned with Covered Hopper Cars, Box Cars or Hopper Cars will be interested in the facts, specifications and details contained in these illustrated booklets. Write for a copy of any one or all three.



ALL 3 → P-S Standardized Cars

—provide top quality, economically

Have you seen the PS-3 Hopper Car? If not, you'll find it worth while to do so. Because, like the PS-1 Box Car and the PS-2 Covered Hopper Car, it affords all of the benefits of tested design and continuous production.

These cars reflect the total experience and resources of Pullman-Standard's engineers. It is the Research and Development engineers' job to help create and continually test components and completed cars. It is their assignment to always search for better ways to make better cars.

The stamina and continual improvement of the PS-1, 2 and 3 are influenced by "on-line" checking by Pullman-Standard's Sales and Service engineers. These men travel thousands of miles every month to observe performances under operating conditions—to obtain significant data on cars of all makes.

Be sure to see the standardized PS cars that are proving, to more and more railroads, that *top quality can be produced economically through standardization.*

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

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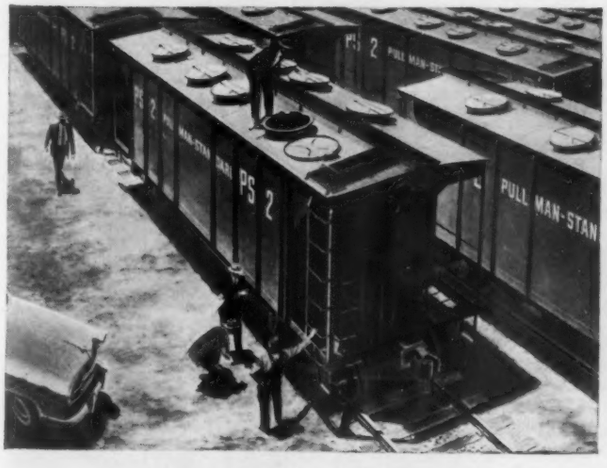
BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

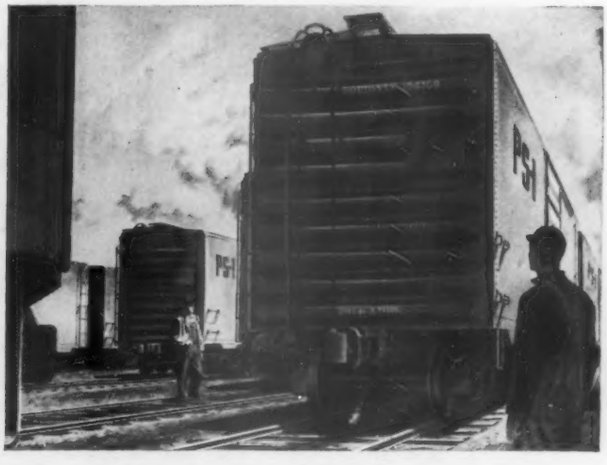


THE PS-2 COVERED HOPPER CAR

The PS-2 Covered Hopper Car presents another Pullman-Standard achievement in freight car standardization for dependability and economy.

The design is new. It permits the use of the most modern methods of car construction and production including the extensive use of automatic arc welding.

Besides stronger construction, some of the PS-2's features include: improved circular hatches; smooth self-cleaning hoppers; and a sturdier, safer roof.



THE PS-1 BOX CAR

The PS-1 is a good example of the progressing standard which is so important in the successful operation of these cars. Pullman-Standard Research and Development engineers have never stopped testing, proving and improving the standardized PS-1.

They continue to anticipate the railroads' needs for better, more economical freight cars. Under laboratory control, technicians reproduce service hazards and conditions more severe than those actually ever encountered.

Complete loudspeaker paging and two-way communicating systems for classification yards, terminal facilities, and baggage handling facilities, passenger stations, freight stations, engine houses, interlocking towers, car checking service, and for Dispatcher's and other low level telephone type line applications.

- Control consoles
  - Direct two-way communicating equipment
  - Low level line two-way communicating equipment
  - Intercommunicating systems
  - Paging systems
- Portable sound systems
  - Pre-amplifiers
  - Power amplifiers
  - Way station amplifiers
  - Dispatcher's transmitter and receiver units
- Telephone line concentration units
  - Telephone line monitoring units
  - Remotely controlled systems
  - Automatic volume level compensating units
  - Time and emergency signal devices
- Microphones
  - Loudspeakers
  - Weatherproof control units
  - Switch and jackbox assemblies
  - Equipment cabinets
- Power supply units
  - Relays—switches—transformers
  - Speech frequency band-pass filters
  - Wire-cable
  - Control equipment for special applications
  - Portable tape recorders

R. W. NEILL COMPANY

MANUFACTURERS • ENGINEERS

1811 CARROLL AVENUE, CHICAGO 12, ILLINOIS

M.B.A. degree from Temple University. He was formerly director of administration and budget director of P. Lorillard & Co., New York, and prior to that was staff assistant, controller's department, Glenn L. Martin Company.

Raymond F. Sederberg, assistant freight claim agent of the CHICAGO & NORTH WESTERN at Chicago, has been appointed freight claim agent there, succeeding **A. C. Mundy,** who retired Oct. 1. Named to succeed Mr. Sederberg is **Erhard A. Peterson,** assistant freight claim agent, while **Eric V. Zanders,** claim adjuster and inspector, also becomes assistant freight claim agent.

E. K. Taylor, assistant general solicitor of the PENNSYLVANIA at Philadelphia, has been appointed assistant general counsel.

OPERATING

John R. Thompson has been named assistant to superintendent transportation of the CHICAGO & EASTERN ILLINOIS at Chicago.

C. E. Dorfler, division superintendent of the NORTHERN PACIFIC at Spokane, Wash., retired October 1 and has been succeeded by **G. L. Slorah,** assistant division superintendent there. Named to replace Mr. Slorah is **J. O.**

(*Continued from page* 103)
president, Eastern region, at Toronto in April 1948, transferring to Winnipeg in 1950.

Mr. Curley was born at Dunham, Que., July 27, 1898, and entered railroad service May 1, 1916, as stenographer for the CPR at Montreal. He was appointed assistant to vice-president and general manager, Eastern lines, in 1946; general superintendent, Ontario district, in 1947; and general manager, Eastern region, in 1943.

Guy N. Curley

John H. Gill, chief operating officer of the GEORGIA & FLORIDA at Augusta, Ga., has been elected president and general manager of the JACKSONVILLE TERMINAL at Jacksonville, Fla. Mr. Gill was born in Franklin county, N.C., and was graduated from North Carolina State College in 1923. He joined the Seaboard Air Line in 1925 as assistant engineer, leaving that road in May 1951 to become chief operating officer of the G&F.

FINANCIAL, LEGAL & ACCOUNTING

Russell L. Hartse, district claim agent of the NORTHERN PACIFIC at Glendive, Mont., has been transferred to Missoula, Mont., succeeding **C. C. Burgess,** resigned, while **Robert E. Bainbridge,** claim agent at Tacoma, Wash., has been promoted to succeed Mr. Hartse.

T. C. Bullard, cashier of the ATLANTA & WEST POINT and WESTERN OF ALABAMA, has been elected secretary and treasurer at Atlanta, Ga., succeeding **R. C. Ailor,** who has retired at his own request after 33 years of continuous service. Mr. Bullard has been appointed also treasurer of the GEORGIA.

Robert A. Sauer has been appointed to the newly created position of controller of the RAILWAY EXPRESS AGENCY at New York. Mr. Sauer, a native of Hamilton, Ohio, holds an

Friendly

and so very much more

Hotel Cleveland has a warm and friendly welcome for you— but it has more, too. It's located in the heart of Cleveland, next door to Union Passenger Terminal.

Hotel Cleveland

CLEVELAND, OHIO

OTHER SONNABEND OPERATED HOTELS

Chicago:
Edgewater Beach Hotel
Boston:
The Somerset, The Shelton
New York City:
Ritz Tower
Resorts:
Whitehall, Palm Beach, Fla.
Samoset, Rockland, Me.

Davies, trainmaster at Yakima, Wash., while **D. E. Carlson** transfers from Livingston, Mont., to succeed Mr. Davies. **C. M. Gullickson,** clerk in the assistant superintendent's office at Livingston, replaces Mr. Carlson.

E. S. Pinkerton, trainmaster of the GREAT NORTHERN at Minneapolis, has been promoted to superintendent of terminals there, succeeding **F. C. Spencer,** who has retired. **V. W. Bice,** safety supervisor at Willmar, Minn., has been appointed trainmaster to succeed Mr. Pinkerton. **C. A. Keil** succeeds Mr. Bice as safety supervisor.

B. C. McClanahan, assistant division superintendent of the Eastern Kentucky division of the LOUISVILLE & NASHVILLE at Ravenna, Ky., has been appointed superintendent of that division, succeeding **J. C. Nickerson,** deceased.

Walter C. Kresge has been appointed assistant general superintendent of the PITTSBURGH & WEST VIRGINIA at Rook, Pa. Mr. Kresge, 43, received a B.S. degree from Lehigh University in 1939. He then served a special apprenticeship with the Lehigh Valley and became general car foreman in 1942. He joined the American Locomotive Company as research engineer in March 1944 and was placed in charge of production testing in 1946. In January 1951 he became diesel supervisor for the DELAWARE & HUDSON and was promoted to general diesel supervisor in July 1952, which position he held until joining the P&WV.

J. N. Fraine, assistant to vice-president of the CANADIAN PACIFIC at Montreal, has been appointed general superintendent of the Alberta district at Calgary.

James Laurie has been appointed acting general manager of the GEORGIA & FLORIDA at Augusta, Ga., succeeding **John H. Gill,** chief operating officer, who has resigned to accept a position with another company. **J. H. H. Patterson** has been appointed assistant to general manager. The position of assistant to chief operating officer and assistant auditor, formerly held by Mr. Patterson, has been abolished. **H. N. Molton,** car accountant, has been appointed assistant superintendent and car accountant, at Augusta.

G. C. Phillips, assistant superintendent passenger transportation of the CHESAPEAKE & OHIO at Richmond, Va., has been appointed superintendent passenger transportation there, succeeding **I. D. Irwin,** who has retired, after more than 50 years of service. **W. E. Bowles,** assistant to superintendent freight transportation, has been appointed assistant superintendent passenger transportation, with headquarters as before at Richmond, succeeding Mr. Phillips.

John R. Ebert, superintendent of the Mahoning division of the ERIE at Youngstown, Ohio, will be transferred to the Delaware, Susquehanna and Tioga divisions at Hornell, N.Y., succeeding **Arthur W. Baker,** who will retire on pension November 30, after 47 years of service. **Thomas E. McGinnis,** superintendent of the Allegany-Bradford-Meadville and Buffalo and Southwestern divisions at Salamanca, N.Y., will succeed Mr. Ebert at Youngstown.

Chester R. Brenneman, freight agent of the PENNSYLVANIA at Pittsburgh, has been appointed superintendent of stations and transfers at Chicago, succeeding **G. Homer Hill,** who has been granted a leave of absence to serve as director of less-than-carload research for the Freight Station Section of the ASSOCIATION OF AMERICAN RAILROADS.

Joseph C. Bothwell, assistant superintendent of the CENTRAL VERMONT at New London, Conn., has been appointed superintendent at St. Albans, Vt., succeeding **A. E. Bond,** deceased. **Frank M. Webber,** chief train dispatcher, has been named assistant superintendent, with headquarters as be-

(Continued on page 118)

70-TON
(170,100 lb. load limit)
FLAT CARS

for HEAVY DUTY HAULING

Extra Heavy-Duty Fish-Belly Underframe Construction

CENTER SILLS . . . Double fish-belly type fabricated of steel plate and angles 17" deep from bolster to end sill, and 24" deep at center of car. Sills have inside and outside 4" x 3" bottom angles, and 4" x 3" outside top angles. Center sills are continuous from end sill to end sill with 22" wide top coverplates.

SIDE SILLS . . . Heavy-duty fish-belly type, built-up of steel plate and angles 9" deep from body bolster to end sills, and 24" deep at center of car. Sills are constructed with 4" x 3" inside angles top and bottom.

The exceptionally heavy and rugged underframe construction of these cars classes them apart for bonus performance . . . trouble-free operation and years of added service. For 70-ton requirements (170,100 lbs. load limit) these CFC REBILT flat cars are premium buys for you.

To meet requirements where nominal capacity demands are under 50 tons (132,-100 lbs. load limit) these cars are available with 50 ton trucks. Thus, substantial initial cost-of-car savings are effected as well as the cost of hauling the weight of heavier trucks.

GENERAL SPECIFICATIONS

	70 TON	50 TON
Capacity, Nominal:	140,000 lbs.	100,000 lbs.
Light Weight Approx.:	39,900 lbs.	36,900 lbs.
Load Limit:	170,100 lbs.	132,100 lbs.
Length over strikers:	40 ft. 6 in.	40 ft. 6 in.
Width:	9 ft. 6 in.	9 ft. 6 in.
Trucks:		
Capacity, Nominal:	70 TON	50 TON
Side Frames:	Cast steel, full U section	Cast steel, full U section
Wheels:	33" dia. steel	33" dia. cast iron
Axles:	6" x 11"	5½" x 10"

Write for Descriptive Sheet Giving Complete Specifications

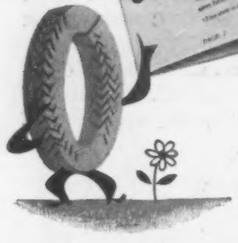
CHICAGO FREIGHT CAR... and parts company
CHICAGO, ILL. AUBURN, WASH. PUEBLO, COLO.

MAIN OFFICE: 228 North LaSalle Street, Chicago 1, Illinois

How to make packings last longer

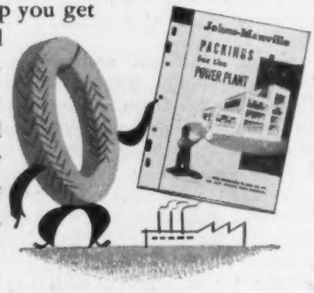
Tips by Johns-Manville Engineers to help you keep equipment running

. . . and this new chart makes it easy to choose the right J-M Packings for your requirements



THIS handy 6-page Johns-Manville packings guide, simplifies your selection and application problems on packings. Covering 32 of our most popular styles, it tells at a glance what J-M packings to use . . . why they are recommended . . . and how to install them.

Its schematic diagram is spot-keyed to help you locate packing styles for various services. Its group-headings help you select J-M packings for centrifugal and rotary services, reciprocating rods and plungers, valve stems, pipe flanges, manholes and handholes . . . to seal against steam, air, oil and water etc. . . . to withstand various temperatures and pressures. Its condensed packing descriptions give you essential ordering information . . . and there is a page devoted to tips on proper installation to help you get maximum economy and efficiency from your Johns-Manville packings.



We will be glad to send you a copy of this handy packing selector. Write Johns-Manville, Box 60, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville PACKINGS & GASKETS

"When you unload a freight car, UNLOAD IT CLEAN!"

That is the appeal of Johnny Careful and the M. & St. L. Railway to All Receivers of Railroad Freight. Most of them do—cleaning everything out of cars in which shipments arrive.

Some don't, however. They leave cars cluttered with dunnage, lumber and other bracing materials, steel strapping, paper, damaged cartons and all sorts of rubbish and dirt. These are the people whose cooperation Johnny Careful is asking, on behalf of the Railways, the Shippers Advisory Boards and the Public.

Railroads themselves aren't always perfect housekeepers. Too often, they leave stuff in cars, after receivers have neglected to remove it. But the roads are doing better and better to provide really clean cars.

Big New Job for Johnny Careful

Johnny, you remember, is the Big Boss each April of Perfect Shipping Month, dedicated to proper packaging, labeling and loading freight. Now he heads a new campaign for completely clean unloading.

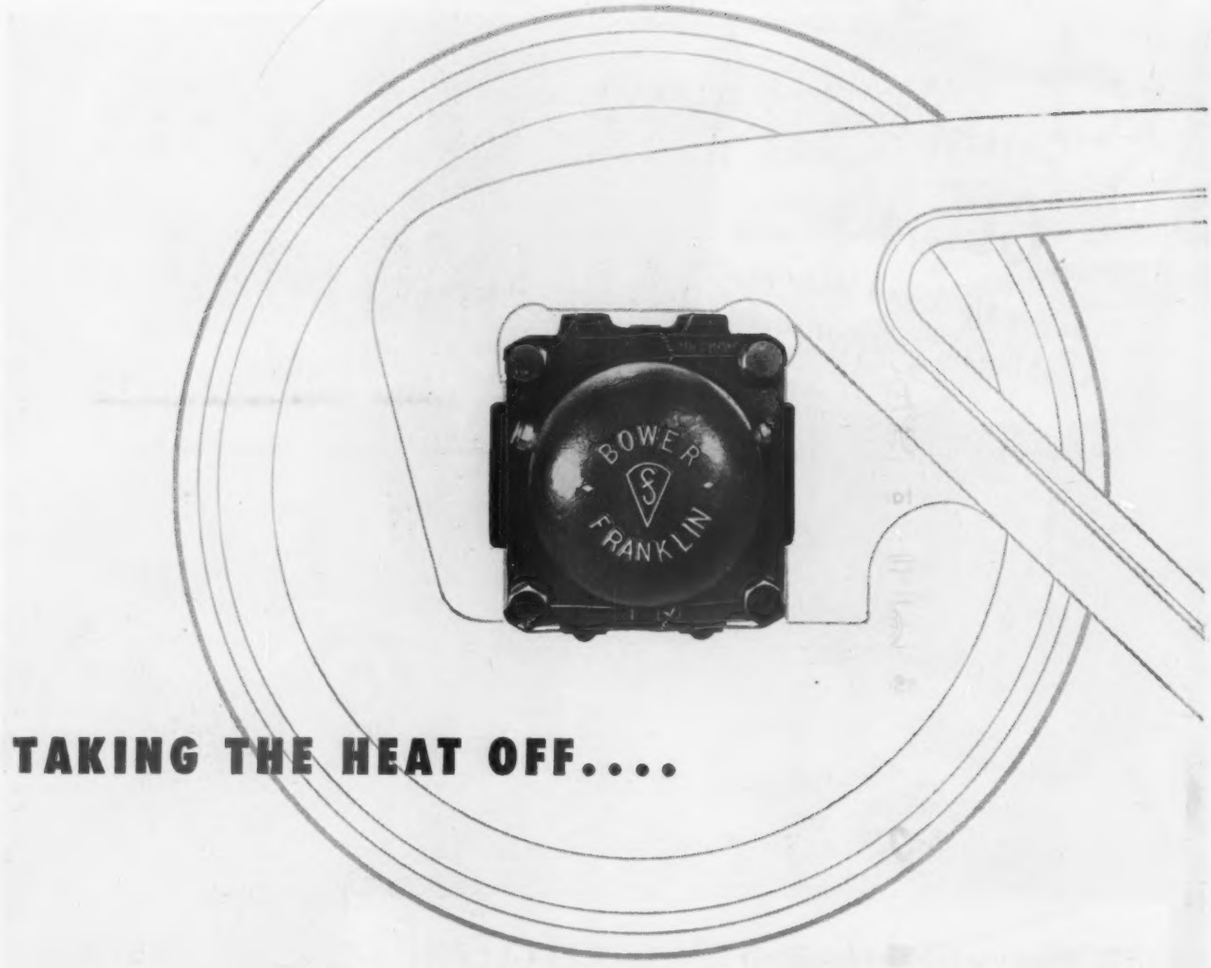
To clean debris out of cars costs U. S. railroads over $100,000,000 a year. And the annual cost to shippers and railways in time lost is even more appalling: 24,000,000 Freight Car Days. That means the average of three days, required to move each dirty car to a "cleaning track," clean it and switch it back, totals the equivalent of keeping 24,000,000 cars out of service one day apiece.

All this useless waste of time and money can be avoided by

CLEAN UNLOADING OF EVERY CAR

The MINNEAPOLIS & ST. LOUIS Railway

FAST FREIGHT SERVICE IN THE MIDWEST



TAKING THE HEAT OFF....

Bower-Franklin journal boxes, equipped with dependable Bower straight roller bearings, are ready to help you carry more freight — at greater speeds — with no danger of hot boxes.

These high-quality bearings have already *proved* themselves in numerous other types of heavy-duty equipment — steel rolling mills, heavy trucks, earthmovers, cranes, shovels, and railroad generator-drive units, to mention but a few.

Sales and application engineering for the Bower-Franklin journal boxes are being handled by the Franklin Balmar Corporation. Additional information will be furnished on request.

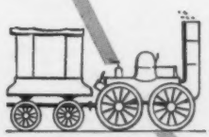
FRANKLIN BALMAR CORPORATION

FRANKLIN BALMAR CORPORATION
WOODBERRY, BALTIMORE 11, MARYLAND
CHICAGO OFFICE: 5001 North Wolcott Ave., Chicago 40

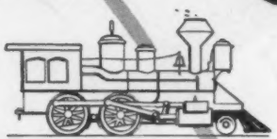
COVERED WAGON

20¢ per ton mile

OPERATING COSTS TAKE ANOTHER TUMBLE!



1830 7¢ per ton mile



1850 3¢ per ton mile

NOW 1½¢ per ton mile

Motorola 2-way radio plays a big hand in these great cost reductions

Further reduction in railway operating cost is accomplished with end-to-end communication in both yard and terminal and main-line radio applications. Wayside to wayside, wayside to train, train to train, car checking and car inspection . . . these are the operations in which 2-way radio lowers costs.

Motorola provides pace-making radio improvements that put you ahead now and in years to come.

Dollar for dollar, in every kind of railroad application, Motorola *is your best 2-way radio value.*

Specialists and WORLD LEADERS IN 2-WAY RAILROAD RADIO

2-way Radio

Motorola

Communications & Electronics, Inc.

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900 N. Kilbourn Ave., Chicago 51, Illinois • Rogers Majestic Electronics Ltd., Toronto, Canada

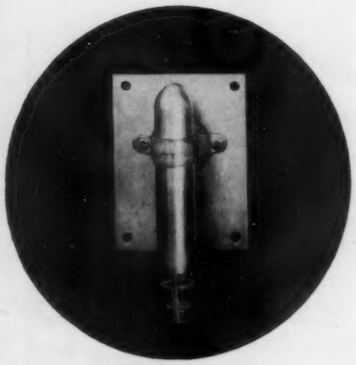
WHEN ANSWERING THIS ADVERTISEMENT, PLEASE MENTION "ITEM 5363"

19 fewer operating parts...

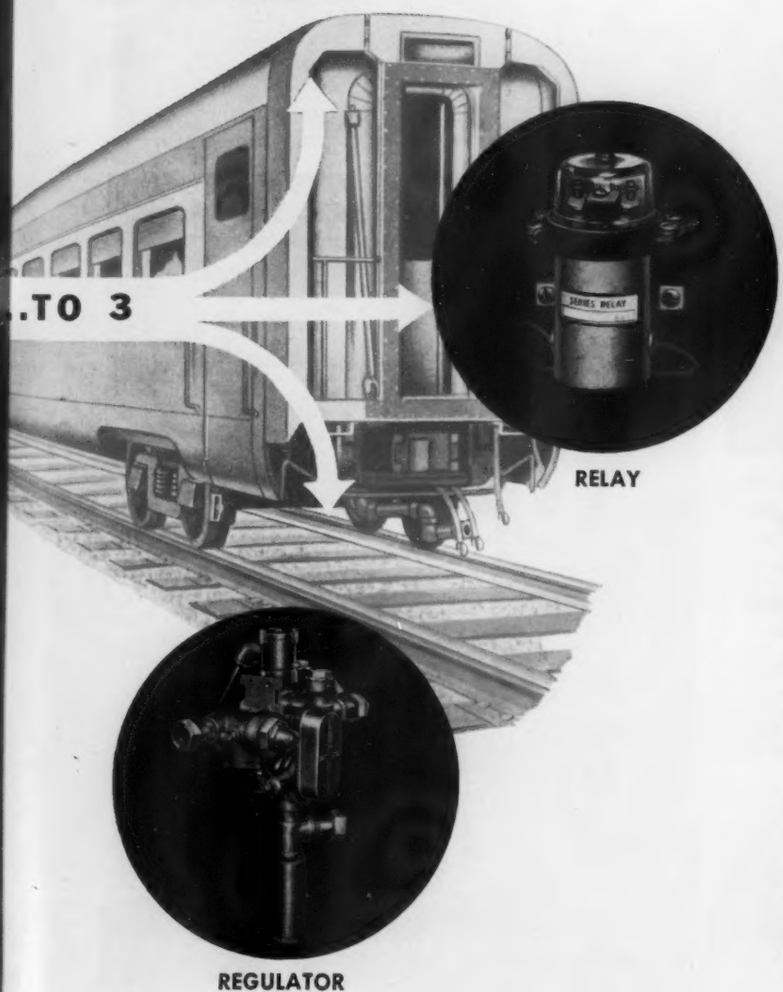
FROM 22 PARTS.

VAPOR Unizone SYSTEM

FOR OPEN-BODIED CARS



THERMOSTAT



RELAY

REGULATOR

BEFORE CONVERSION

The old 5-Zone Car Heating System (best in its day) needs 22 operating parts—22 points to be inspected; 22 potential trouble sources; 22 units for possible replacement—and servicing complications often require highly skilled attention.

AFTER CONVERSION

Modern Unizone maintains uniform temperatures throughout the car within 2°-3° variation, yet operating parts are reduced to three—one thermostat; one relay; one regulator. Users report complete 12-car-train maintenance in less time than required for a **single** car equipped with the old "zone" system.

CUTS MAINTENANCE 90%

In modern Unizone, there's no duplication of equipment—**nothing mechanical inside the car which should ever need attention.** All steam flow (including heat for wash water) is controlled by the single regulator, and this is mounted beneath the floor for quick, convenient access. At-the-car servicing should total no more than 15 minutes, annually.

Vapor Unizone, with its cycling thermostatic action and heat-exchange unit radiation, cuts maintenance 90%; cuts store parts 70%; permits average mechanics to quickly locate and replace faulty units in any weather, day or night... without shopping the car.

From every standpoint—cost, comfort, dependability, servicing, scheduled preventive maintenance—Unizone demonstrates the tangible benefits of well-informed, progressive development. For new cars or low-cost conversions, there's nothing like Vapor Unizone. Ask for Bulletin 578.

VAPOR HEATING CORPORATION

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JACKSONVILLE • RICHMOND • LOS ANGELES • DENVER

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C-D Vibrator Converter

Saves 60% on cost of initial installation. Saves 50% each year on maintenance. Services itself en route. Now equipped with shock resistant magnetic circuit breakers.

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Cornell-Dubilier Electric Corporation, Dept. RA-103
Indianapolis Division, 2900 Columbia Avenue,
Indianapolis, Ind. Affiliated Member A.A.R.

CONSISTENTLY DEPENDABLE
CORNELL-DUBILIER

VIBRATOR CONVERTERS WITH RAILROAD DEPENDABILITY
by the makers of world-famous C-D capacitors

PLANTS IN SO. PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER & CAMBRIDGE, MASS.; PROVIDENCE & HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; FUQUAY SPRINGS & SANFORD, N. C.; SUBSIDIARY: RADIART CORP. CLEVELAND, O.

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IT CAN BE DONE

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PRESSURE SENSITIVE
Spray it-
STENCILS

designed for — SPEED, ECONOMY & ACCURACY

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SALES REPRESENTATIVES
THE O'FALLON COMPANY • 314 NORTH BROADWAY • ST LOUIS 2, MISSOURI

EDWARDS DOUBLE GLAZED SASH
FOR CONSTANT, BRILLIANT VISIBILITY

IN ALL SEASONS CLIMATES ALTITUDES

NO FOG
NO FILM
NO FROST

Write for detailed information on the different types of double glazed units and various designs of sash frames —also details on Edwards Trap Doors and Retractible Steps.

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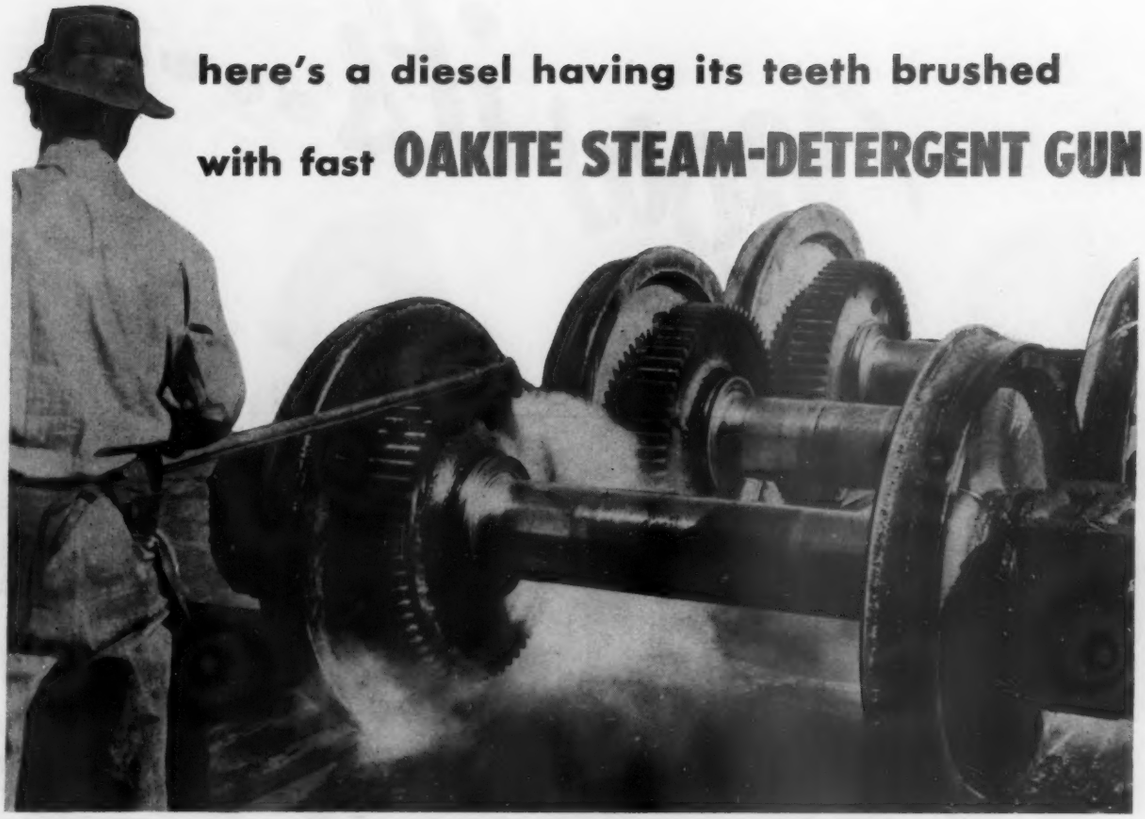
THE EYES OF TRANSPORTATION

SASH FOR EVERY TYPE OF TRANSPORTATION—ON LAND, ON THE SEAS, IN THE AIR

here's a diesel having its teeth brushed with fast OAKITE STEAM-DETERGENT GUN



Removing heavy-duty lubricants from recessed areas is a real tough assignment. And that's what you're up against when you have to remove Crater's Compound from between the bull gear teeth of Diesel driving wheels.

Pictured here is a man with the right idea. With no facilities for boiling out the compound by hot tank, he's blasting the stuff loose with the handy Oakite Steam-Detergent Gun. He's got down between the teeth... cleaned them to the very roots.

Next time you face this problem you try the Oakite Steam-Detergent Gun. You'll easily save up to 50% cleaning time. You'll speed up such other jobs as cleaning running gear, traction motors, trucks, locomotive frames before fracture tests. You can strip paint, too.

See for yourself the efficiency of Oakite Steam-Detergent Cleaning. Find out about this low-priced gun. Ask for demonstration without obligation. Oakite Products, Inc., 46 Rector Street, New York 6, N. Y.

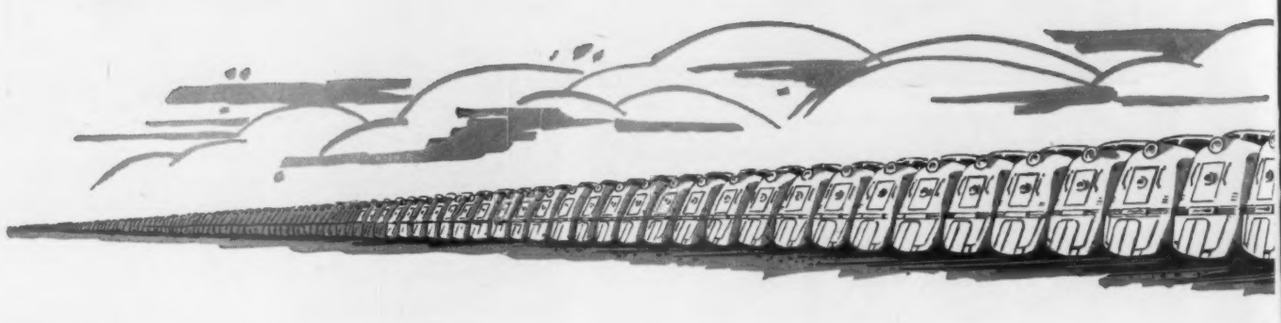
OAKITE PRODUCTS, INC., 46 RECTOR STREET, NEW YORK 6, N. Y.
In Canada: Oakite Products of Canada, Ltd., 65 Front St. East, Toronto, Ont.

OAKITE

RAILWAY DIVISION

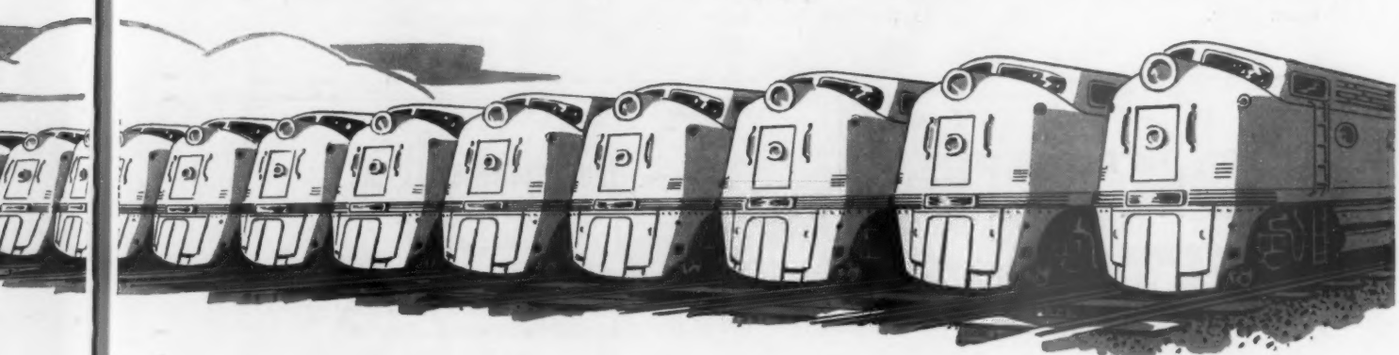
Now it's...

Over One



...More than 100 U.S. GASCON DIESEL Oil!

Hundred!



Railroads specify Sinclair

That was yesterday's record . . . and the list grows longer week by week.
Why this trend toward GASCON®? Simply that Sinclair GASCON DIESEL Oil has proved its superiority *where quality lubrication is essential.* The fact that more than 100 leading U. S. Railroads give first preference to this one Diesel lubricant is *convincing proof of* GASCON *quality.*
It's a fact that gives cause for thought . . . why don't *you* use Sinclair GASCON in your Diesels?

SINCLAIR RAILROAD LUBRICANTS

SINCLAIR REFINING COMPANY, RAILWAY SALES • NEW YORK, CHICAGO, ST. LOUIS, HOUSTON

(*Continued from page* 107)
fore at New London. Mr. Bothwell joined the CV in 1909 and served as superintendent of the CV Transportation Company at New London from 1940 to 1948. He then became special accountant and trainmaster at St. Albans and in 1951 returned to New London as assistant superintendent.

T. E. Riley has been named general supervisor car distribution of the KANSAS CITY SOUTHERN at Shreveport, La.

F. W. Somerton, assistant superintendent of the CANADIAN NATIONAL at Edmonton, Alta., has been appointed system rules supervisor at Montreal.

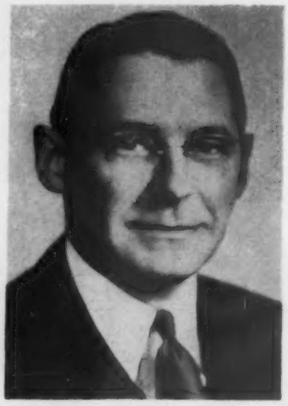
A. W. Grassie, acting assistant superintendent of the CANADIAN PACIFIC at Wynyard, Sask., has been named assistant superintendent at Wilkie, Sask., succeeding **W. B. Knox,** who has retired after 43 years of service.

W. A. George, assistant general manager of the JACKSONVILLE TERMINAL at Jacksonville, Fla., will retire November 1.

TRAFFIC

A. C. Tanksley, assistant general freight agent of the TEXAS & PACIFIC at El Paso, has been promoted to general freight agent there.

John L. Bickley, assistant passenger traffic manager of the United States lines of the CANADIAN NATIONAL, at New York, has been appointed passenger traffic manager at Chicago, succeeding **George L. Bryson,**



John L. Bickley

whose retirement was reported in *Railway Age* October 5. Mr. Bickley joined the CNR in 1921 as clerk-stenographer at Cincinnati, and became assistant passenger traffic manager at New York in 1951.

F. Harry Murphy, who has been assigned to the passenger traffic department of the SEABOARD at Miami, Fla., has been appointed district passenger agent at Baltimore, succeeding **Fred R. Wiggins, Jr.,** who has been named division passenger agent at Savannah, Ga. **Hugh N. Colebrook** will continue as district passenger agent at Savannah.

Clyde W. Hannes has been appointed general agent of the DULUTH, SOUTH SHORE & ATLANTIC at Pittsburgh, Pa.

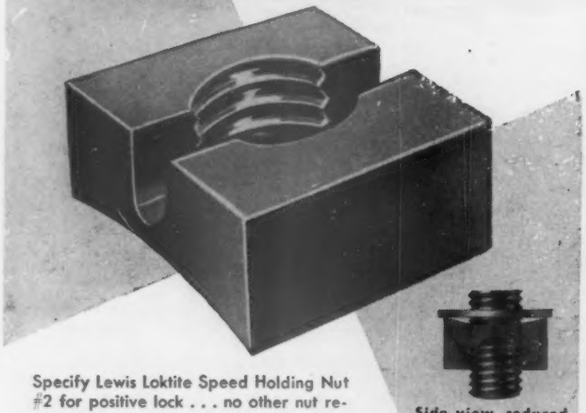
Henry W. Huersch, district perishable freight agent of the BURLINGTON at San Francisco, has been appointed western perishable agent at that point. **F. G. Butcher** has been named general agent at Seattle, succeeding **Carl W. Hoefener,** who has retired.

W. E. Murray, export and import agent of the GREAT NORTHERN at Chicago, has been promoted to general agent there.

Walter L. Scott, export and import representative in the foreign freight department of the CANADIAN NATIONAL at New York, has been appointed general agent at New Orleans.

Leonard M. Schukei, general agent of the ERIE at St. Louis, has been promoted to general freight agent—rates at Chicago, succeeding **Herbert C.**
(*Continued on page* 124)

Lewis LOKTITE NUTS



Specify Lewis Loktite Speed Holding Nut #2 for positive lock . . . no other nut required. Equals tensil strength of bolt. Trimmed sides provide a close wrench fit. *For Double-Life, fewer replacements, specify Hot-Dip Galvanized finish!*

Side view, reduced, showing areas of friction lock.

See your Lewis representative, or contact factory for further details.

Lewis BOLT & NUT COMPANY
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YOUNGSTOWN STEEL CAR CORPORATION
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Large scale producers of . . . big weldments on a production basis — die pressed channels for bus, truck and trailer chassis — railway cars, repairs and parts — miscellaneous heavy presswork.

ROLLING STOCK
40 Ton Steel Sheathed Box Cars
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8000 Gal. Tank Cars Cl. III
Coiled—Non Coiled
50 or 70 Ton Flat Cars 40' Long
30 Yd. Magor Drop Door Cars
20 Yd. Koppel Lift Door Cars
Jordan Spreader
Locomotives—Car Parts—Tanks

HYMAN-MICHAELS CO.
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CHICAGO 3, ILL.
San Francisco Los Angeles St. Louis New York

Goodall, leading manufacturer of railroad upholstery for over 85 years, specializes in fabrics that offer maximum durability, lasting beauty, and minimum maintenance. That's why the country's leading railroads select not only upholstery (woven and plastic coated) but window curtain, drapery, and window shade fabrics *Blended-to-Perform.*

Where durability and luxury are the keynote
GOODALL FABRICS
are preferred!

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THE FINEST NAME IN FABRICS

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GOODALL FABRICS, INC. NEW YORK BOSTON • CHICAGO • DETROIT • LOS ANGELES

You can rewire a diesel-electric locomotive with just one type of G-E cable

G-E diesel-electric locomotive cable (Type SI-58219) can be used to rewire *all* power circuits, including exposed traction motor leads, and *all* control circuits on diesel-electric locomotives. You can reduce inventories, release storage space, and avoid confusion by using this one type of all-purpose cable. It is available in all sizes from 16 Awg through 800,000 circular mils.

This Versatol* Geoprene cable has the toughness needed for power circuits. The neoprene-base jacket protects against flying dust, grit, and sand. It resists oils, water, cleaning compounds, live steam, and ice. The extra-flexible rope stranding is designed to withstand continual flexing. The insulation has a continuous rating of 75 C copper temperature to withstand severe operating conditions.

G-E diesel-electric locomotive cable has the easy-handling properties needed for control circuits. The fine stranding makes it easy to pull. The insulation strips cleanly for easier application of terminals. Correct, uniform diameters simplify installation.

For more information on the G-E diesel-electric locomotive cable that reduces stocks, simplifies installation, and prolongs the life of rewiring jobs, write Section W101-1074, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

*Registered Trade-mark General Electric Company

You can put your confidence in—

GENERAL ELECTRIC

IF IT'S FROM Standard's RAILROAD LABORATORY,

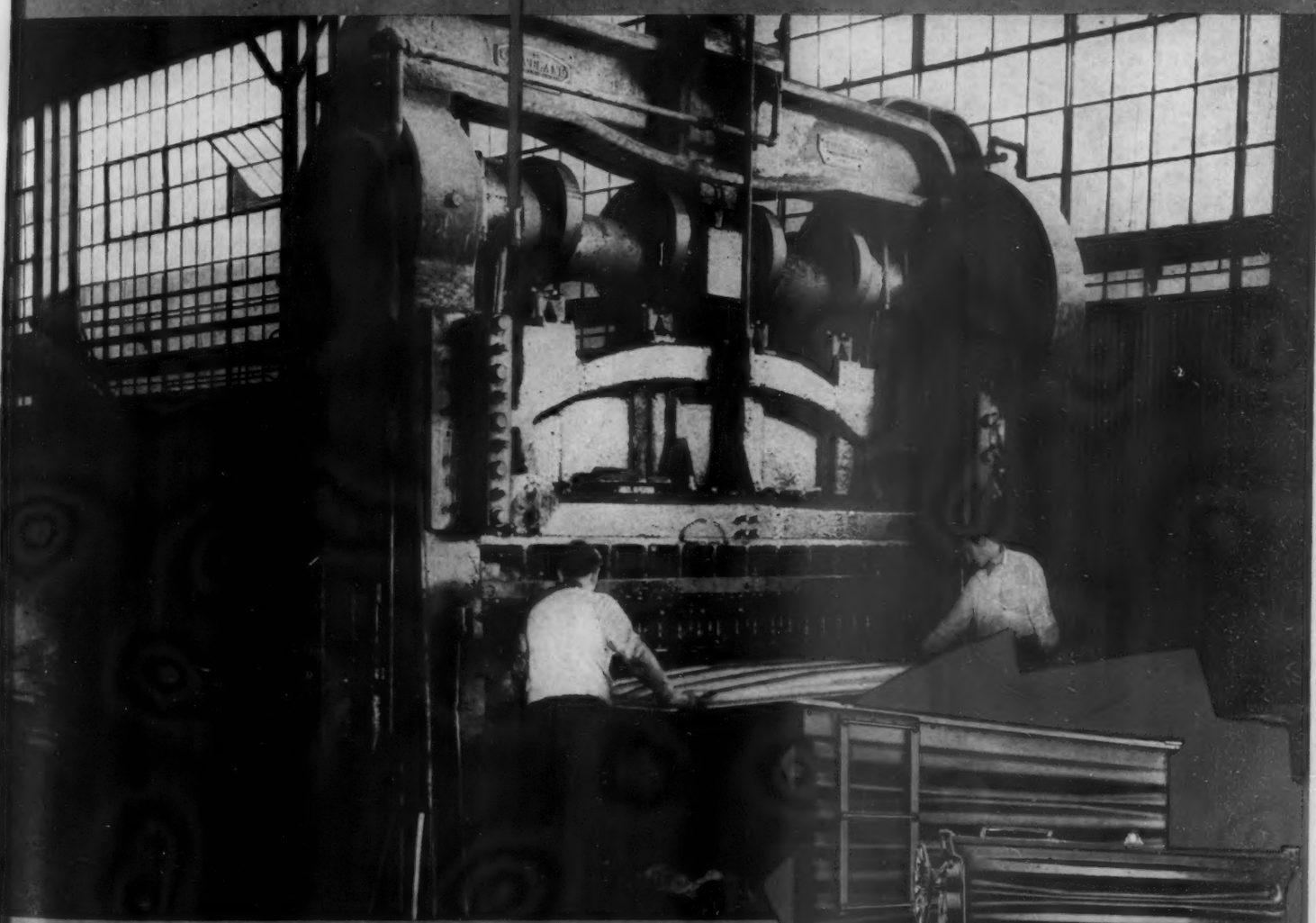
Engineers don't need to be told it's improved if they know it's a *Standard* product!

These *Improved Dreadnaught Drop* and *Rigid Ends* for gondola cars, for instance, are the result of *continuous* change not just one improvement.

The *latest* improvement in the rigid end incorporates the corrugations as semi-restrained beams into an integral structural unit—giving increased protection to the car superstructure. The *latest* improvement in the drop-end forms the bottom flange stiffener into a box form which adds strength as well as a deflector design to eliminate corrosion pockets.

Standard Railway Equipment Manufacturing Company's railroad laboratory in fabricating *today's* products anticipates *tomorrow's* needs . . . and research continues ceaselessly as *Standard's* investment in the future of railroading.

THE IMPROVED IS IMPLIED



Standard

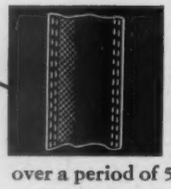
RAILWAY EQUIPMENT MANUFACTURING COMPANY

310 S. MICHIGAN AVENUE • CHICAGO • 247 PARK AVENUE • NEW YORK

Sloping-top, sectional-type diaphragm illustrated. Other types available to meet all conditions.

...HERE ARE RAILROADMEN'S REASONS WHY:

1. Famous Morton Sectional Construction—Top section has pockets five inches deep, into which legs fit. This exclusive design and construction give absolute protection against weather getting through into vestibule section



2. Self-lubricating 3-ply Belting—Diaphragm belting is fully impregnated (in the fabric fibre, *not* just a surface treatment) with special solution developed by us over a period of 50 years of diaphragm manufacture. This preserves and increases the wearing qualities of the belting; provides self-lubrication against friction; insulates belting against acid fumes, and makes it highly resistant to damage by fire, water, mildew, rot and all weather conditions.

3. Top separate from Legs—Because the top section and legs are separate and independent, either section may be replaced separately without having to replace the complete diaphragm installation. This feature effects substantial savings.

4. Leg-ends bound—Extra wear and longer life are assured by a binding (of web belting or chrome leather, as specified) at the bottom of legs, where wear and friction are most severe.

Morton Vestibule Diaphragms are designed and constructed to give the utmost in wear, in dependability under the most rugged daily service in all weather—and in low maintenance costs. The sloping-top construction provides quick drainage and eliminates cinder accumulation . . . In *many* respects, "you're better off when you specify Morton!"

MORTON MANUFACTURING COMPANY

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MAKERS OF: OPEN-GRIP RUNNING BOARDS AND BRAKE STEPS • KASS SAFETY TREAD • VESTIBULE DIAPHRAGMS AND CURTAINS • METAL DOORS • STEEL FLOORING . . . AND A WIDE LINE OF PRODUCTS FOR RAILROAD USE

Streamlite HAIRINSUL

OUTLASTS THE LIFE OF THE CAR

That new refrigerator car coming out of the shop will someday wear out, be sold for scrap or be junked, but the Streamlite Hairinsul originally used in the car can be salvaged to be used again. *It actually outlasts the life of the car!*

Streamlite Hairinsul's high insulating efficiency remains the same year in and year out. Records show where all-hair insulation removed from refrigerator cars after 20 years or more of service, is in like new condition. It does not deteriorate with age. Its salvage value is high.

At right are some additional reasons why Streamlite Hairinsul is the leading car insulation. Write for complete data.

LOW CONDUCTIVITY. Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity – .25 btu per square foot, per hour, per degree F., per inch thick.

LIGHT WEIGHT. Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.

PERMANENT. Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.

EASY TO INSTALL. Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

COMPLETE RANGE. STREAMLITE HAIRINSUL is available ½" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings are available.

HIGH SALVAGE VALUE. The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

Sets The Standard By Which All Other Refrigerator Car Insulations Are Judged

Streamlite HAIRINSUL

AMERICAN HAIR & FELT CO.

Dept. H310, Merchandise Mart, Chicago 54, Ill.

(Continued from page 118)

Well, who has been advanced to assistant freight traffic manager. Named to succeed Mr. Schukei is **John W. Cloud,** who transfers from Minneapolis. **Leland L. Harris,** general agent at Memphis, replaces Mr. Cloud, and in turn has been succeeded by **Warren R. Jacobs,** commercial agent at Indianapolis.

F. J. Beggs has been appointed district freight service manager of the UNION PACIFIC at Salt Lake City.

C. J. Bindner, general freight agent of the MISSOURI PACIFIC at St. Louis, has been named coal traffic manager at that point, succeeding **Leland A. Sackbauer,** retired. **A. G. Thaman,** assistant general freight agent there, has been appointed general freight agent, while **E. A. Trapp,** assistant to freight traffic manager, and **G. A. Peach** have been named assistant general freight agents at St. Louis.

Charles A. Fritzson, division freight agent of the PENNSYLVANIA at Grand Rapids, Mich., has been transferred to Fort Wayne, Ind., succeeding **F. G. Schoettler** (*Railway Age* September 28). **Oren B. Peterson,** district freight agent at Chicago, replaces Mr. Fritzson.

R. S. Bryant has been appointed general passenger agent of the WESTERN MARYLAND at Baltimore, succeeding **Thomas J. Jordan,** who has retired after 31 years of service. **Emery Miller,** district agent at York, Pa., and one of the country's oldest active railroad men, has retired after 60 years of service.

H. A. Edwards, general agent—merchandise traffic of the SOUTHERN PACIFIC at Portland, Ore., has been transferred to Los Angeles.

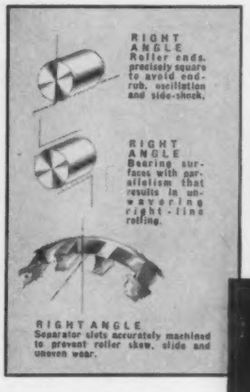
F. Kennard Moore, general agent, passenger department, of the CANADIAN NATIONAL at Boston, has been promoted to general passenger agent at New York. **Charles H. Ladue** succeeds Mr. Moore as general agent at Boston.

MECHANICAL

C. W. Billings, mechanical engineer of the CHICAGO & EASTERN ILLINOIS at Danville, Ill., retired August 31 and has been succeeded by **D. L. Engel,** chief draftsman.

Named as district master mechanics of the MILWAUKEE at Chicago and Deer Lodge, Mont., respectively, are **A. W. Hallenberg,** master me-

(Continued on page 128)


RIGHT ANGLE
Roller ends, precisely square to avoid end-rub, oscillation and side-shock.
RIGHT ANGLE
Bearing surfaces with parallelism that results in unwavering right-line rolling.
RIGHT ANGLE
Separator slots accurately machined to prevent roller skew, slide and uneven wear.

MADE Right to ROLL Right!

● Let our engineers work with you on your bearing problems. No charge, no obligation.

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ROLLWAY BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

VERY IMPORTANT PEOPLE — *our subscribers!*

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Once a year ABC's auditors make available a detailed, accurate, verified account of paid subscriptions to *Railway Age*: who and where they are . . . how many they add up to . . . what their titles, their work and, consequently, their job interests are . . . and many more facts that check and double check the *exact number* and the *exact kind* of subscribers we are reaching.

AUDITED PAID CIRCULATION ABC

Editorially, our main objective is to help *you* do your job quicker, more efficiently, and at a greater profit. With the ABC audit, we have impartial confirmation of the soundest formula for selecting and publishing the kind of articles and features in which you have a marked on-the-job interest. Guided by the ABC audit, *Railway Age's* editors work *expressly for you.*

The same detailed check which guides our editors in being of greater service to you also helps our advertisers. They, like the editors, take the ABC audit seriously. Knowing the facts helps them to tell you how to do a job faster, better and, again, at a greater profit. That's why the ads in *Railway Age* constitute such a valuable supplement to the editorial content.

Yes, in both our editorial and advertising pages, you're in the driver's seat—very important people!

In addition to the ABC audit, the fact that you *pay* for our publication helps to keep us on our toes. Because you respect *Railway Age* enough to pay for it, we, in turn, must produce a business paper that continually *earns* that respect. *The fact that more and more of you railroad men are adding your names to our circulation rolls, shows that our efforts are successful!*

If by any chance, you are not numbered among our list of very important people —our *Railway Age* subscribers . . . if perchance, you're reading someone else's copy—why not become a full-fledged *Railway Age* subscriber *today!* Let this service work for you regularly every week! (See subscription coupon on page 59.)

RAILWAY AGE

30 Church Street, New York 7, New York

SCENE: *Model 10* AUTOMATIC SIGNAL IN ACTION

Unseen—by the impatient motorist—is an on-rushing second train, concealed by the first. But there's no danger here of a dreaded "second train accident." Model 10's flashing lights will *continue* to operate, and the barrier arm will *remain* down until both trains have cleared the crossing.

Unseen—something that can't be illustrated: Model 10 *dependability*. Model 10's operate unfailingly, even when temperatures are extremely high or low . . . and regardless of snow or sleet. Moreover, Model 10's are on the job 24 hours a day—never go "off duty."

Unseen—the safety record established by Model 10's: Since 1936, thousands of them have been placed in operation at busy crossings, and *not a single accident has ever occurred as a result of operation failure on the part of these signals.*

Unseen—the considerable dollar-and-cents economies effected by Model 10 protection. The low cost of Model 10 installation, operation, and maintenance is written in the records of a hundred railroads.

There's much more to tell about Model 10 safety and economy. Write for 748-RA-1053

CERTIFICATE OF MERIT for Safety AWARDED WESTERN RAILROAD SUPPLY CO. BY THE NEW YORK WORLD OF SCIENCE AND INDUSTRY

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General Offices and Factory:
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speeds materials handling, cuts maintenance costs

with NEW American DiesELectric

To handle an ever increasing volume, progressive metals handling and processing Northern Indiana Dock Company recently added another American DiesELectric Locomotive Crane.

They chose another American DiesELectric because they knew from their own experience in handling big tonnage of metals, *nothing equals this locomotive crane!*

Hundreds of other American DiesELectric Locomotive Cranes solve similar materials handling jobs for their owners every day quickly, economically. You'll find these cranes in almost every industry . . . steel, railroads, mining, pulp and paper, construction and industrial plants of all kinds.

Fast, smooth-operating American DiesELectric Locomotive Cranes with diesel power to the deck, electric power to the trucks require a minimum of maintenance. In fact, detailed cost and operating records prove an American DiesELectric Locomotive Crane *will write off its cost fully in five short years!*

Does your company have a materials handling problem? Our specialists are at your service! Write or call today!

Modernize...economize...with

American Hoist

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For the BIG PRODUCTION jobs of industry...

AMERICAN LOCOMOTIVE CRANES

4 reasons why leading railroads specify *Federal-Farnsworth* TRAIN RADIO

1 LONGEST EXPERIENCE

Federal-Farnsworth is America's oldest manufacturer of railroad radiotelephone communications systems. Federal-Farnsworth equipment is the finest available anywhere in the world... the product of engineers who *pioneered* the application of radio to railroad operation.

2 COMPLETE EQUIPMENT LINE

Federal-Farnsworth supplies every unit and component needed for system-wide service... rugged, compact, dependable, low-maintenance mobile or fixed station equipment...from antenna to handset... for mainline, yard, terminal, wayside station, locomotive, caboose or crewmen on foot.

The Federal "PACKAGE" for Railroad Signaling and Communications

Comprises the following high-quality equipments—in addition to Train Radio Systems:

- Sequence Switch Interlocking Systems
- Carrier Telephone and Telegraph Systems
- PTM Microwave Systems
- Automatic Telephone Systems
- Train Describing Systems
- Closed-circuit Television Systems
- Train Dispatching Systems
- Train Departure Indicator Systems
- Remote Control Systems for all railroad needs
- Selenium Rectifiers
- Battery Chargers
- Wire and Cable

... and many other systems and components

3 MEETS ALL REQUIREMENTS

Federal-Farnsworth train radio systems are designed and built to the exacting standards required in railroad operation... engineered to comply with all regulations and specifications of authoritative agencies. They are *performance-proved* on major railroads... here and abroad.

4 CONTINUING DEVELOPMENT

Federal-Farnsworth systems are ceaselessly and exhaustively field researched. Every unit undergoes systematic and continuing development in one of the world's greatest electronic laboratories. The name *"Federal-Farnsworth"* is assurance of protection from obsolescence.

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MOBILE RADIO COMMUNICATIONS DEPT. **119 8th Street, Passaic, N. J.**

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Federal invites railway engineers to consult its direct sales organization on any communications problem or project.

For further information, address Dept. Q-347.

speeds materials handling, cuts maintenance costs

with NEW American DiesELectric

To handle an ever increasing volume, progressive metals handling and processing Northern Indiana Dock Company recently added another American DiesELectric Locomotive Crane.

They chose another American DiesELectric because they knew from their own experience in handling big tonnage of metals, *nothing equals this locomotive crane!*

Hundreds of other American DiesELectric Locomotive Cranes solve similar materials handling jobs for their owners every day quickly, economically. You'll find these cranes in almost every industry . . . steel, railroads, mining, pulp and paper, construction and industrial plants of all kinds.

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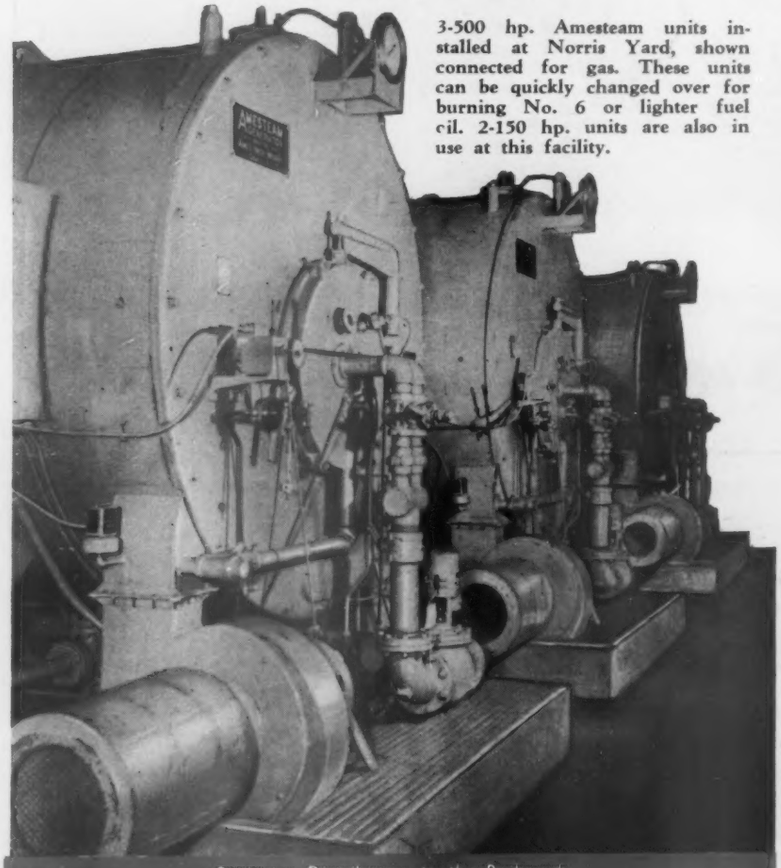
AMESTEAM . . .

At Norris Yard

HAILED as one of the most modern freight yards in the country, the Southern's $11 million Norris Yard at Birmingham is equipped with the most advanced devices and communications. The Diesel shop and other facilities at this outstanding "push-button" yard are served by three 500 hp. and two 150 hp. AMESTEAM Generators. Here again as in a host of other rail installations, "the Railroad Boiler" is providing substantial savings.

Completely automatic,* these units provide dependable heat and process steam at low cost. No boiler room attendants are required. AMESTEAM evaporates 15¾ pounds of water on 1 pound of fuel using No. 6 oil — representing better than 80% thermal efficiency, which is guaranteed. Single units from 10 to 600 hp. Design pressure — 15 to 200 lbs. Higher pressures on special order. *Phone, write or wire.

"The Railroad Boiler"



3-500 hp. Amesteam units installed at Norris Yard, shown connected for gas. These units can be quickly changed over for burning No. 6 or lighter fuel oil. 2-150 hp. units are also in use at this facility.

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Engineering, Sales and Service
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Phone Scranton 7 3391

(Continued from page 124)

chanic at Deer Lodge, and **G. J. Johnston,** master mechanic at Spokane, Wash. Jurisdiction of **L. H. Rabun,** master mechanic at Miles City, Mont., has been extended from Aberdeen, S.D., to Harlowton, Mont., including Lewistown and Great Falls.

L. J. Waters, acting superintendent motive power of the GEORGIA & FLORIDA, has been appointed superintendent motive power at Douglas, Ga., reporting to the superintendent.

S. M. Ehrman, assistant supervisor work simplification of the CHESAPEAKE & OHIO, has been appointed general car foreman at Columbus, Ohio.

Richard Babb, acting superintendent of motive power and car equipment of the Montreal district of the CANADIAN NATIONAL, has been named superintendent of motive power and car equipment for that district.

PURCHASES & STORES

A. Witt Hix, general purchasing agent of the CHESAPEAKE & OHIO, has been appointed chief purchasing and stores officer, with headquarters as before at Cleveland. **S. R. Secor,** assistant general purchasing agent, has been named general purchasing agent and **H. W. Brewer,** purchasing agent, succeeds Mr. Secor as assistant general purchasing agent. **W. J. Eck,** assistant purchasing agent, has been appointed purchasing agent. **E. S. Garnett** has been appointed assistant to purchasing agent, succeeding **R. J. Burns,** who has been named assistant purchasing agent. **R. E. Bryan,** fuel assistant, has been appointed fuel purchasing agent.

Mr. Hix was born in Bramwell, W.Va., in 1893, and joined the C&O at Richmond, Va., in 1908. He was appointed assistant to director of purchases and stores at Richmond in 1922 and was transferred to Cleveland in 1929, becoming general purchasing agent in 1942.

A. Witt Hix

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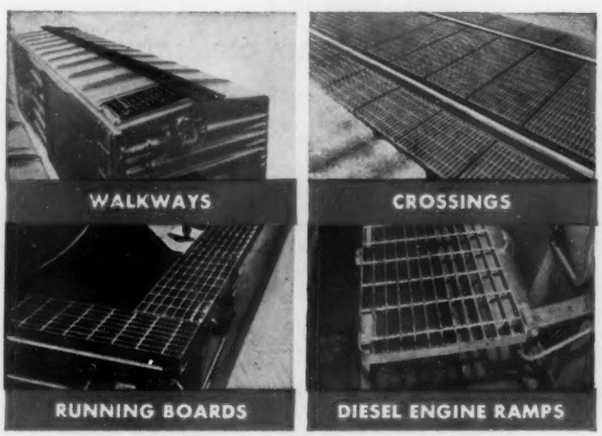

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BLAW-KNOX

ELECTRONICS AT WORK ON EJ&E

(*Continued from page* 82)

classification tracks and make up departing trains, and also he is in charge of directing the work in North yard, South yard and West yard.

As incoming eastward trains pass the Westgate interlocking tower at the west approach to Kirk yard, a yard clerk, standing at the window talks into a Dictaphone machine, stating the initials and number of each car in sequence. This is recorded on a Memobelt. Cars originating at Buffington (a point on the EJ&E main line from South Chicago) are carded on the north side. To read these, the yard clerk leaves the Westgate tower, and stands at a point north of the arriving train. On such occasions, the clerk detaches the microphone and extension cord from the Dictaphone in the tower; adjusts that machine for reception from a telephone line; goes downstairs to his position across the tracks; and plugs his extension cord into the telephone jack in the nearest switch machine. He can then recite the information which he reads from the cars which is recorded on the Memobelt in the tower. Floodlights, on the tower and on two talk-back speakers in front of the tower, permit car numbers to be read easily at night.

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When the rear of the incoming train passes the Westgate interlocking tower, the conductor throws off the waybills, which, with the Memobelt, are sent by pneumatic tube 2 miles to the yard office just north of the hump. While the cars of that train are in the receiving yard, and are being moved to the track to be pushed over the hump, the paper work is done in the yard office. There the Memobelt is run through a Dictaphone transcribing machine, and a listening stenographer types a train list.

Clerks check the waybills with this list, and then designate the classification track for each car or cut of cars. Then a switch list is typed on a Teletype sending machine which simultaneously operates Teletype receiving machines to type the same list in other offices: (1) in the hump office which includes the automatic switching control panel; (2) in the assistant general yardmaster's office which overlooks the hump area; (3) in the track scale house; (4) in the retarder control tower operating room and (5) in the West end yardmaster's office.

While cars are being classified, the waybills are being sorted in the office. When cars on a classification track are being made ready for a departing train, a yard clerk makes a walking inspection and lists the car numbers in the order found. Returning to the yard office, the clerk dictates a Memobelt record of his information, and sends it to the agent's office, where the consist list is made and the waybills arranged accordingly.

Another check is made as the departing train pulls past the Westgate interlocking, where the yard clerk makes a Memobelt record of the car numbers in sequence. This Memobelt is sent by pneumatic tube to the agent's office, where the information is checked against the office copy of the train list. Hence, corrective measures can be taken if any car gets into the wrong train, or fails to be in the train for which it was intended.

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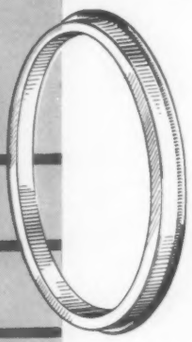

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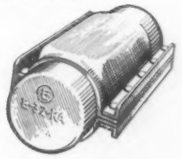

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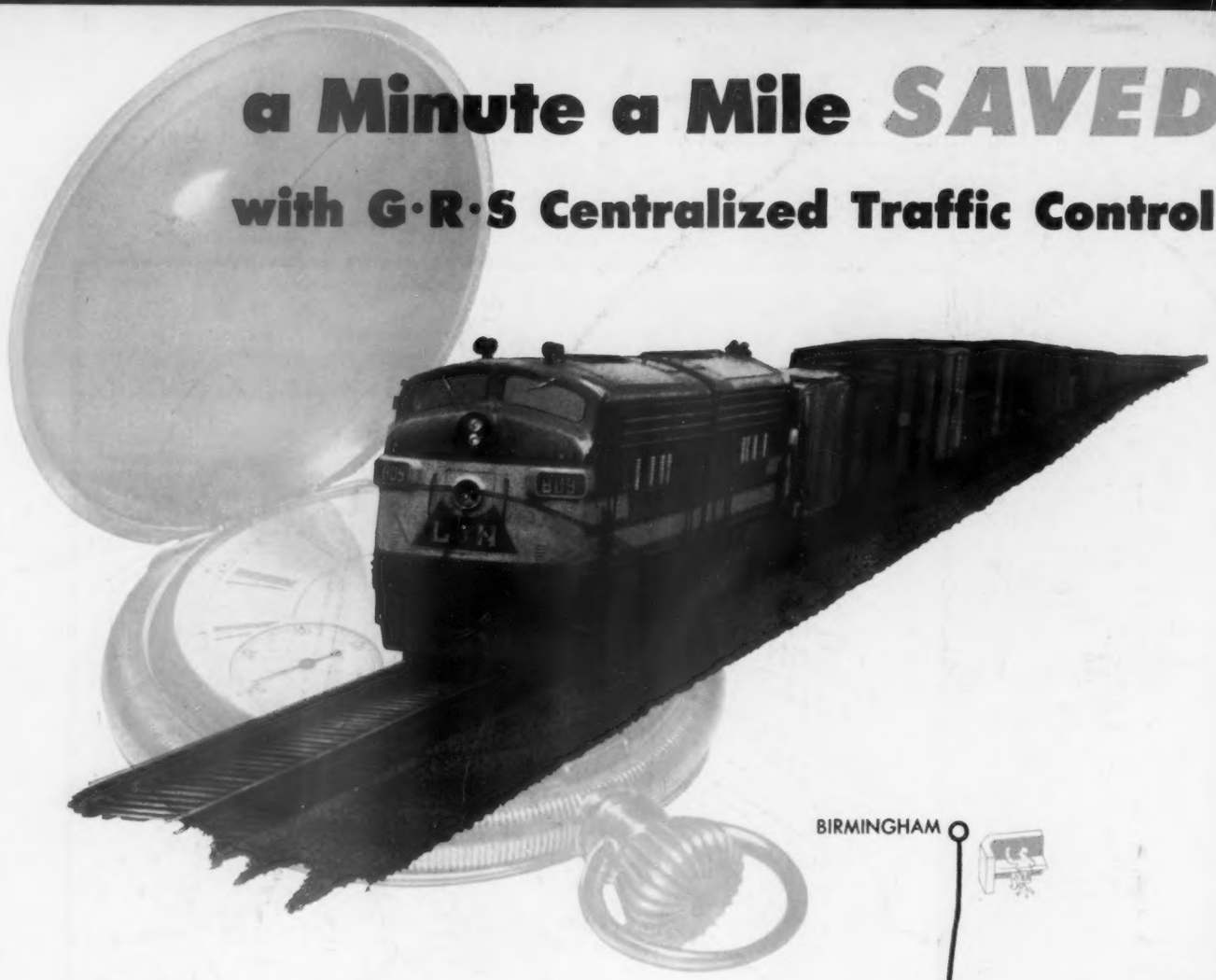

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